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INTRODUCTION.

The course intended to be pursued in conducting the present volume of the Journal, was briefly mentioned in the advertisement attached to Vol. III. But as that notice may not come into the hands of new subscribers, a concise statement of our arrangements for this year may not be unacceptable, as a cursory introduction to the articles which shall be presented in this and subsequent numbers.

Our work has hitherto been perhaps too strictly confined to topics of education; yet the patronage extended to it, under these circumstances, has been such as to continue its existence. A more extensive field of usefulness, however, it is thought, as well as a wider circulation would be secured, by enlarging the scope of contributions, so as to embrace those things which form the *subjects* of education, and consequently become matters of general interest to a reading community.

The dissemination of useful knowledge, and the application of science to the practical pursuits of life, will accordingly be objects of attention in our future numbers. Arrangements to this effect have been made with individuals who take an active interest in the general diffusion of science and intellectual improvement. In connexion with these objects, a space will be regularly appropriated to articles designed to advance the in-

terests of the Lyceum,—an institution already well known, we presume, to most of our readers, as one very successfully adapted to the circumstances of society in this country. By a happy combination in its character, it embraces the benefits imparted by the mechanics' institutes, along with advantages appropriate to the agricultural life and its various occupations. A particular attention is also given by its members to the subject of popular education, with a view to the immediate improvement of schools, and the better qualification of teachers for their professional employments. The numerous branches of this popular institution require a common channel of intelligence, and, (if possible,) a peculiar source from which to derive materials and suggestions for reading, conversation, and other exercises suited to the mutual improvement of their members. The Journal of Education is designed, in its present form, to suit this purpose, by communicating information of the progress of the Lyceum, and furnishing short and familiar treatises on various subjects of general knowledge and practical science.

In accordance with its original design, the Journal will still embrace whatever may seem conducive to the diffusion of enlightened, extensive, and elevated views of the whole subject of education. Occasional notice will also be taken of the various branches of instruction already introduced in schools and other seminaries, as well as of those which the general dissemination of science at this day seems to authorize or to require.

With a view to the farther improvement of the work by original contributions on important subjects, it is proposed to enlarge the size of the numbers, so as to admit of their being issued, henceforward, *once in two months*; the interval elapsing hitherto between the dates of publication, having been found less favourable for such an arrangement.

ART. I.—*The Philosophy of Bacon, considered in Reference to its Influence upon the Human Mind.*

THE writings of many of the ancients which have come down to us, afford conclusive evidence, not merely that their natural powers of mind were of the first order, but that they had been disciplined with great care. It is not pretended that the poetry of Homer, or the eloquence of Demosthenes and Cicero, has been surpassed in excellence, by the productions of more recent times. In architecture and statuary, we have done little more than to imitate the models of ancient Greece and Rome. Indeed, the same remark might be extended to many other departments of the arts and of literature, which properly depend upon the decisions of taste and judgment. But in natural philosophy, the ancients were extremely deficient. The fact seems to be, that they had not discovered the true mode of advancing in it. Here, too, they permitted themselves to be influenced by mere matters of feeling and opinion. They formed theories in their own minds, and persuaded themselves that these were true in fact. It is plain that they were in no condition to learn, for they aspired to make, the laws of nature. In addition to this, their different opinions soon began to conflict with each other. Thus the evil of sectarian disputes among themselves, was superadded to those general errors which naturally resulted from their common ignorance of the true mode of philosophizing. When this state of things is borne in mind, their meagre attainments in this department of human learning are no longer surprising. Their mistake was made at the very outset; and every new step served but to make their theories the more palpably absurd. This mistake consisted in supposing that the natural powers of the human mind were adequate to declare the laws of nature, without having first learned them by actual observations and experiments.

Here was the point where Bacon interfered, and earned a fame as lasting as the laws of science themselves. His object was not so much to give the world information, as to show the way to it. He attempted to point out and define the rich fields to be cultivated, rather than the fruits to be produced. Science is the knowledge of things as they exist. And he taught that it is the part of true philosophy, to found itself on facts and actual existences. To a disciple of Bacon, a theory is not a system which he has pledged himself to support; but merely a classifi

cation of facts and observations, which he is ready to alter and amend, as new discoveries may require. He takes his facts from the operations of nature, whose disciple he avows himself to be. This is the inductive philosophy which has been so long working a revolution in the whole circle of the arts and sciences; and at no period more successfully than at the present moment. Here is a foundation laid, which is broad enough for all to build upon; for it is coextensive with the works of creation. It often seems as if truth had been sparingly and tardily disclosed. But all history proves that, slowly as it has risen, it has shone, in its dawning, upon many eyes that were unwilling to acknowledge it. The principles of Bacon did not escape the common fate of new discoveries, and were met by a most violent and bitter opposition. The powers of church and state conspired to effect their overthrow. And well might they unite for this purpose. For these principles contained the germ of a philosophy which was soon to elevate the human mind into a state of freedom and independence, which it had never before attained. And the powers of church and state, as then established and administered, anticipated the struggle they must soon endure, and trembled from a consciousness of their own radical unsoundness.

There were not wanting those, however, who were ready to pursue their inquiries after natural science, according to the inductive method which Bacon had pointed out. And it is not now necessary to recount the history of their unparalleled success. Much more has been effected than the most sanguine of Bacon's immediate followers ever ventured to anticipate. The precise things have not been discovered, which seemed to them probable; but things quite as much in advance of the state of science which then existed, and things of incalculable value in their application to the various uses of life. These external effects of which we are now speaking, are visible alike to all. And it has now become as fashionable to eulogize the principles of Bacon, as it ever could have been to condemn them. He who has learned little else, has yet learned to bestow a passing tribute here. But it is much easier to be loud in their praise, than to be trained in their practice. We have already spoken of the mode of philosophizing, before the time of Bacon, and of the change which his system introduced. It is our design to apply these remarks particularly to the effect of the true mode of philosophizing upon the state of the human mind. In order to make this plain it may be necessary to examine the nature of the change which Bacon introduced. It is one of the infirmities of the human mind, not

to be aware of its own need of discipline. This is the case now, as much as it was before Bacon lived and wrote. It is natural to form theories without sufficient examination, and to support them against all truth and probability. Now it was the direct tendency of Bacon's philosophy to cure this evil. Thus it would not merely establish true principles of natural philosophy, but would disclose the true way for the mind to enter into these principles. It would be manifested not merely in the character of the results which would be attained, but in the mode by which they would be reached. Not merely in the truths believed, but in the nature of this belief, and in the tenure by which theories would be held. It is one thing to believe in the truth of certain theories which the application of the inductive system has established, and quite a different thing to arrive at those results by the inductive method. In the one case, the mind has adopted the opinions of others as true upon authority ; in the other, it has blossomed and brought forth fruit of its own.

The difficulty which the philosophers of Bacon's time felt in bringing themselves to practise upon his principles, is still experienced. The disposition to theorize is checked in its operations by a fear that its fallacies will be detected and exposed. But what was labour then, is labour now. The royal road to science is still undiscovered. And if we would enter into the principles of true philosophy in the true way, we must do it by a patient induction of our own. It is not meant that every man must himself perform all the experiments and make all the observations necessary to authorize the conclusion. These may be taken on the testimony of those who have heard and seen. But there is a process for the mind to go through in forming its conclusions, a step of which corresponds to and rests upon every one of these facts and observations. This is what each one must do for himself, if he would be a philosopher.

The principle we are speaking of is easily explained. We have said that a theory now rests upon certain facts and observations, and is received as an inference from them ; or rather as a general expression of the truth which they manifest. Hence it is evident that in order to understand what this theory signifies, and with what qualifications it is to be received, it must be viewed as a result from these facts. Thus every man who would understand it, must view the facts in his own mind, and form his own induction. Those who receive it in any other manner, are as much bound by a false attachment to theory, and as liable to sectarian zeal, as were the ancients. It is obvious, then,

that the true system of natural philosophy, has a most important bearing upon the state of the human mind. The general effects it has already produced are manifested in the spirit of independence and free inquiry which has marked its progress. But this is to be regarded as scarcely yet commenced. For, strange as it may seem, the principles of Bacon's philosophy are scarcely yet introduced into their proper sphere of operation. It was natural for those who found it so difficult to conform their own minds to their influence, to suppose them to be too sublime for childhood and youth. But the science of education is beginning to be better understood ; and it will soon be seen that Bacon has had no truer follower than Pestalozzi. Education is now beginning to be regarded as consisting not so much in the acquisition of knowledge, as in the formation of philosophical habits of mind. For the true philosophy of mind is as applicable to children as to men. The idea that in the season of youth, rules and problems are to be learned by rote, and the mind thus stored with knowledge for the uses of after life, is fast becoming obsolete. And instead of an irksome and worse than useless attempt to force the young mind to retain by an unnatural grasp, what it cannot comprehend, our schools will soon become the true nurseries of intellect—places where the infant mind instead of satiety and disgust, will acquire a thirst after knowledge, and learn the laws of its own development. And instead of being decked with artificial flowers, and loaded with unnatural fruit, it will be encouraged to strike its own roots into the earth, and spread its branches to the soft influences of heaven, and thus be made capable of the purposes of its own destiny.

To show the application of this view of the inductive method to primary schools, a single instance will suffice. We select the science of arithmetic. And we say that the inductive method is not merely the true mode of learning it, but the only mode. Disguise the matter as much as we please, there is yet an order in the process of acquiring it, which cannot be reversed. We may insist that the abstract principle, shall first be committed to memory under the name of a rule, and then add examples to be mechanically solved by its application. But the abstract rule was never framed, till long after the mind of him who framed it, had been familiar with the examples which it embraces. And he who would understand it, must go through a similar process. He must see the truth in his own mind, in single individual examples, before he can understand the abstract rule or proposition which is the expression of the general truth. The usual mode

of teaching this science is therefore essentially defective. It presents things truly ; but it presents the unintelligible side of them—unintelligible, because the principles by which it is to be understood have not first been explained. Perhaps we ought not to dismiss this part of the subject, without expressing our satisfaction that so far as the science of arithmetic is concerned, the evil is in a great measure provided for. And with this we also express our individual opinion, that the introductory arithmetics by Colburn and others, upon the plan of Pestalozzi, are now exerting a more powerful influence in philosophizing the human mind, than all the metaphysical books of the age.

Perhaps the remarks we have already made will be sufficient to explain the view we wish to convey. By the application of the inductive method, the natural world has been made to yield its treasures for the convenience and gratification of man. But he who stops here in his contemplation of the benefits to be derived from a true system of natural philosophy, takes but an outside view of the subject. Its principal use has not been displayed in developing the laws of the natural world, and in ministering to the external conveniences of natural life. It has had a higher use to perform in its reaction upon the mind itself. The new and increased strength and vigour and independence of mind, which are beginning to be manifested by all classes, are to be attributed to the impetus received from the principles of a sound natural philosophy. These have to do directly with the powers and operations, and the constant, daily habits of the mind. And their tendency to demonstrate the true laws of natural science is not more sure, than their wholesome influence upon the mind itself. Natural science is the world in which the mind loves to labour ; and the tendency and effect upon itself, are similar to the effects which the body derives from free exercise in the open air.

But, as was said before, these benefits are not transferable from one mind to another. The health and strength of which we are speaking are such as can be acquired only by individual application. It is impossible, from the very nature of the case, that the same identical truth can be communicated from one person to another. The fruit can be united to no branch but that which produced it. The cement of its living union is something more than the mere power of adhesion, or art might supply its place. As has already been observed, therefore, it is merely the external benefit of true natural philosophy which is made common to all. A way is opened and facilities are afford-

ed for all to enter into its more important uses. But for this object much labour and personal investigation is necessary. And it is no uncommon thing, even at the present day, to see many who have enjoyed all the advantages of education which our country affords, who have yet made no advances in true philosophy. They may have become acquainted with the results, but they have not been disciplined by the process. But much is to be anticipated from the changes in this respect which our elementary schools are exhibiting. Not only more of the rising generation will become imbued with the true principles of philosophy, but they will have the advantages of an earlier commencement, with no injurious prejudices to overcome. We may predict with certainty that great advantages will result from these improvements; but we cannot with accuracy define their character nor measure their importance.

Art. II.—*Observations on Infant Schools.*

Infant schools are an institution of recent origin; and, in this country, particularly, it is but a short time since they became objects of general attention. Few of our community have had opportunity of personally observing the operation of these schools; and many have necessarily derived all their knowledge of them from occasional report. A brief account, therefore, of the character and design of schools of this description, may not be uninteresting as an introduction to more general statements relating to the same subject.

An infant school may be best described, perhaps, as something which resembles, not so much a school, as a large nursery, and the object of which is to provide for its little inmates employment and amusement, not less than instruction. A number of young children, varying, in different instances, from fifty to one or even two hundred in amount, and embracing all diversities of age, from that of about six years down to that of eighteen months, are assembled to spend the day under the care of a teacher, furnished with the requisite aid of one or more female assistants.

The arrangements made for the benefit of these infant pupils, are designed, in the first place, with reference to *comfort and health*. A spacious, airy, and well lighted room, with several smaller apartments adjoining, as well as a suitable play ground, is accordingly provided in all cases where such advantages are accessible ; and the children receive every attention for convenience and health, for their noon meal, for intervals of play, of rest, and even of sleep, which could be devised by the most solicitous care of a mother. In many instances, also, the additional aids of simple taste and decoration have been employed ; and the mind of childhood, is delighted with specimens or representations drawn from the vast stores of grandeur and beauty, amid which it is the common privilege of man to be placed by creative Wisdom.

The *intellectual* instruction imparted at these schools, is restricted to a few simple but useful and interesting elements. It embraces the rudiments of arithmetic, a good degree of progress in reading and orthography, some information about animals, plants, and minerals, and the various substances composing articles of daily use in household affairs or the arts of life,—beside other things which it would consume too much time to enumerate.

But the peculiar feature in the infant school system, is, the excellence of its *moral* instruction, by which the pupils, instead of being made passive recipients of injunctions and silent listeners to truth, are allowed a free and varied intercourse with each other and with their teacher, and are made active and spontaneous agents in their own improvement. The moral lessons of the infant schools, if they ever can be detached from the other departments of instruction and exercise, may be briefly said to resemble, as nearly as possible, the tender, affectionate, and judicious management of a well regulated nursery. In its connexion, however, with the cheering and enlivening influence of numbers, its free scope for social amusement and recreation, and its frequent recourse to the elementary principles of interesting and useful knowledge, the infant school method has some points of superiority over perhaps the best forms of domestic nursery discipline,—for at least that part of the day, which it is desirable to have occupied with instruction.

The moral part of infant school education is eminently *rational* and *affectionate*. It is founded on familiar and common occurrences in the school room,—not conveyed in language always formal and seldom intelligible : it is addressed to the bet-

ter feelings of the heart, and is communicated in the accents of mild and kind affection : it is elicited *from the mind itself,—not forced into it:* the little community in the school room is, in fact, converted by skilful cultivation into a vigilant and most efficient society for the suppression of vice. This system throws away entirely the restraints of fear, and substitutes an intelligent and voluntary respect for those moral principles, which, to the unperverted mind of childhood, are intuitive.

To render this general description intelligible to persons who are unacquainted with the particular forms of discipline and instruction adopted in the infant schools, it may be sufficient to say, that the effects mentioned are produced by the personal influence of the teacher himself. He depends for his results chiefly on sympathy and imitation, those powerful principles of action in the young mind : he wishes the children to be uniformly cheerful,—to attain this end, he is so himself : he inculcates tenderness by the mildness of his own manner, and the gentleness of his own tones : he wishes his little pupils to be cleanly and neat in their personal appearance and habits, —he sets them a constant example, and preserves a corresponding effect in the school room and its furniture. He cultivates the sensibility to natural beauty and innocent pleasures by the interest he takes in the play ground and garden, and the care he bestows on them. For rules and penalties he substitutes encouragement and persuasion, and for tangible rewards he uses words and looks of approbation. If one of his little flock become wayward and refractory, instead of attempting to wrench the will from its course by violence, he mildly leads the offender to a group of his fellows who are pleased and busy with their lesson, and leaves him to the restoring influence of their society, and the susceptible spirit within his own little breast. Nature does its genial work ; the turbid mind soon becomes serene ; reason returns to her supremacy over the soul, bringing back with her the mood of gentleness and love. The softened transgressor returns with a new docility to the performance of his duty.

Those who are familiar with the history of education will recognize the methods adopted in infant schools as embodying the spirit of the system of Pestalozzi,—the greatest benefactor of our age, the truest observer of the human mind, and, (with one sacred exception,) perhaps its benignest friend : the man who was the first to maintain in relation to instruction, and to prove

by triumphant experiment, that there is within the human soul that, which to strengthen and expand and cherish and direct, is the sole business of education ; that every infant bosom is a mine of unexplored treasure, which cultivation only brings to light ; that every child possesses in miniature the attributes of the great Father of spirits ; and that in prosecuting moral education, the instructer has only to develope these traits of resemblance. The intellect, he thought, was to become a throne on which the better propensities might sit in perpetual dominion ; prostrating and exterminating every passion which is an enemy to the nobler nature, till the great fabric of character rises in the glory of complete and permanent proportion.

It can never be too deeply regretted that this illustrious philanthropist should have been so long misunderstood and misrepresented ; and that it was not till towards the close of his invaluable life that the generality, even of intelligent teachers, in this country or in England, recognized his high attributes of professional superiority, the sublimity of his benevolence, the profoundness of his philosophy, and the depth and extent of his experience. The glory of original and beneficent greatness, however, will dwell upon his name, as it descends to distant ages ; and history will revert to it with a grateful eye, when numbering the individuals whose minds have impelled the great tide of human improvement.

The children of the present generation are, in most countries of Europe, tracing the path of elementary knowledge under the guidance of his intellect, as communicated in his system of instruction ; and the village school boy in New-England finds with equal wonder and delight, that arithmetic, as taught on *his* principles, is a rational science, founded in his own mind, and assimilated to it.

The system of instruction adopted in the infant schools, is chiefly, then, a transcript of the method of Pestalozzi, applied to the earliest stages of education. It was first introduced into England about nine or ten years ago, by one of those active philanthropists whose names reflect a true splendour on that country. The first attempt to establish a school for infants, (if the information received at this distance is correct,) was made in the metropolis under the domestic roof of that individual ; and was thence extended as benevolent persons of influence became acquainted with its character and design, and teachers were prepared, by observing the original model.

With the modesty peculiar to simple motives and pure benevolence, the man to whose efforts society is indebted for the establishment of infant schools, has been so little anxious to assert his claim to public gratitude, that in bringing forward on this occasion the name of WILSON, as that of the founder of infant schools, it must be done as a thing which is gathered by inference from current information, rather than received on any particular authority. Nor is it important in a subject identified as this is with the interests of society, and receiving a fresh impulse from every mind which is applied to it, that we be exact in attempting to assign the merits or the names of individuals. Be he who he may, whose energies were first put forth to devise and to propel this engine of improvement, he carries within his own breast a consciousness for which dominion would be a poor exchange. If he is among those whose daily pursuits merge them in the mass of population congregated in London—'that mighty heart,' which has sent forth some of the noblest impulses of humanity—he enjoys daily the sublime satisfaction of contemplating the fruits of his labours, in the hundreds of fellow beings whom his humanity has been a chief instrument in wresting from the early dominion of ignorance and vice, and raising to the eminence, the purity, and the conscious freedom of intelligence and religious principle. If there is on earth such a thing as the reward of active virtue, it is realized in the soul of that man, as he passes the infant groups repairing to school, whose minds he has rescued from neglect and ruin—whose clean apparel and healthful air of innocent happiness, tell what it is to be redeemed from the influences of domestic misery, and an education in the streets. If he occasionally visits the other cities of his native country, and witnesses the extension and rapid increase of the infant schools, and sees them becoming the elementary part of that system of general education which is now diffusing itself in every part of Britain, and shedding the light of intelligence and of piety over all classes of the people—he perceives that the humble endeavours of an individual, begun and carried on with the sole aid of a good purpose, may do more for human happiness than was ever effected by the enactments of legislators.

Infant schools, soon after their establishment in England, received the aid and the countenance of all classes of the community; and among the friends of the institution were early ranked some of the most eminent and efficient promoters of popular improvement. Under such auspices the number of these schools

was rapidly increased, till one or more were established in every considerable town. A highly respectable and influential society has, within a few years, been instituted for the purpose of giving unity, extent, and permanency to the efforts of philanthropy in this interesting sphere of operation. Under the patronage of this society, Mr. Wilderspin, an early and zealous advocate of infant schools, and for some time the superintendent of the one situated in Spitalfields, has been of late employed in visiting the cities and larger towns of Scotland and Ireland, for the purpose of establishing schools of this description, and, according to the most recent accounts, is very successful in his object.

Whether such schools were needed in the United States, was at one time a question with many ; as there was an apprehension entertained, that by rendering the advantages of early instruction too easily accessible, or by *offering* them, instead of leaving them to be desired and *sought for*, parents might be rendered indifferent to their responsibilities, and slack in their exertions for their children. Some apprehended, also, that infant schools, having been originally intended for the benefit of that class of society whose daily and hourly occupations prevented, to a great degree, the personal discharge of parental duties, could not be productive of good in a community in which, from its peculiar frame of government, it is so emphatically the interest of all that a high degree of personal and domestic virtue should prevail, and therefore that the sense of responsibility connected with the parental relation should be deeply felt. Any means of diminishing this feeling would prove, it was said, an evil to be deprecated rather than an advantage to be desired. Others thought the very principle on which infant schools are founded, a wrong one—the benevolent desire to aid parental instruction and influence ; regarding it as doing, in some measure, a violence to nature, to step between the mother and her offspring, even for the purpose of assisting her.

These objections, it is believed, have been all refuted by the establishment and the actual operation of infant schools on this side of the Atlantic. It is found that, on examination, there are, in all the cities and large towns of the United States, a very numerous class of the population—chiefly, however, of foreign origin—situated exactly as the corresponding class in England ; from many (and some of these culpable) causes, unable to afford the education of their children, or unwilling to be at the

expense or the trouble. In these circumstances,—as positive compulsion is out of the question, in regard to the discharge of moral and personal duties,—the alternative is simply that of judicious and friendly impulse to the negligent, or the deplorable evil of a vitiated and degraded populace. On experiment, too, it is found that all the evils of gratuitous education are avoided, by merely reducing the terms of tuition, so as to meet the pecuniary condition of families poor in circumstances, but numerous in children, and by dispensing entirely with wages only in cases of extreme indigence. Very often it happens that in this way parents being *enabled* to educate their children, are induced to make exertions which they never would have made, had the school fees been left at the usual hopeless distance from the reach of their ability. To the poor, in a word, the establishment of infant schools proves a stimulus to industry, and not as had been fancied, an encouragement to sloth.

Neither is the responsibility of the parent in regard to the *moral* instruction of the child found to be diminished. Infant schools have, after fair experiment, proved themselves an effective aid to parental management,—increasing the moral sensibility of the child,—awakening the parent to new views and more constant exertion. Intelligence enters the poor man's dwelling in the person of his own child, and brings docility, and peace, and happiness along with it. True, it gives the young child an acute sensibility to the faults and the vices of its parent, (if any such exist,) but it is equally true, that, in well authenticated instances, the obdurate heart of a vicious parent has been touched by the innocence of his child, or pierced by an unexpected word of gentle admonition, such as the infant moralist had been accustomed to give or receive, when among his little school fellows. Mothers, too, have thus been restored to conscience and to peace ; and wives have acknowledged with tears of joy the reformation of their husbands, and the happiness which had come to dwell within their homes.

It is scarcely necessary to say that the objection against infant schools, which was founded on their interference with parental duty, has proved imaginary. The infant school is found to be a poor mother's best friend ; relieving her, during a great part of the day, of the care of that member of her family which is the most difficult for her to superintend and manage—the one between the youngest infant, (which with the household cares is sufficient charge, even to an able body and an active mind,) and the child who is old enough to go to a primary school. A sister

is, by this means, often released from premature domestic care, and left free to attend school, for her own improvement. The whole question now touched upon, with all its supposed difficulties, resolves itself into this shape,—Whether it is well to send young children to school a year or two earlier than has been customary, and to allow them the benefit of protection, care, and instruction, adapted to their tender age? This question is fully settled by the effects already attending the infant schools. It is found that infants may not only be kept out of harm's way, and kindly tended, but that they may be kept constantly happy, and be actually taught much that is immediately useful to them as moral beings, and that serves to prepare the way for further instruction in other schools. Mind and body are both turned to good account; both are employed in useful and pleasing ways; both are gently treated and skilfully cultivated. In addition to this, the disposition is developed, and trained to rectitude and happiness; and reason, in all its benignant influence, is brought out to mould the forming character. Let an observer look into one of our infant schools, and he will see a little community unperverted in understanding, fresh and uncontaminated in feeling, prompt and cheerful in action; kindness and joy pervading the whole in common sympathy; actions instantly approved or condemned; all the natural and sinless propensities of animal and intellectual nature in free exercise; admonition given in tones of constant gentleness; instruction expanding and delighting, (never oppressing or straining,) the mind; the whole soul, the whole being, not only unrestrained by arbitrary rule, not only permitted to act, but invited to act, and kept in agreeable action, unless when purposely permitted to rest. No parent, it is believed, has ever left such a scene, without wishing that all classes of society were furnished with such schools, adapted to their condition and brought to their doors.*

To enter into a detailed account of the exact number of infant schools, or of the children estimated to be benefitted by them, would occupy time which perhaps would be more usefully employed in general views of the whole subject, as a department of education, and as a source of valuable instruction to teachers and parents. It must suffice, therefore, for the present, to say that the infant schools, as they exist in England are do-

* Private schools for infant children, we are happy to observe, are now established; and several are proposed in different vicinities within the city.

ing extensive good, by suiting the purpose of preparatory training for the National Schools, or those of the British and Foreign School Society,—a class of schools corresponding in some respects to the common or district schools of New-England. Children are admitted into the infant schools at any age, from that of six years to that of eighteen months ; and remain till they are transferred to the other schools mentioned, which they enter at the age of seven years.

The early age at which children are admitted to the primary schools of New-England, and those of this city in particular, which receive children at the age of four years, seemed to some persons to supersede the necessity of infant schools, or in fact to preclude their existence entirely. This objection to these schools, has, like all the others made on presumption, been set aside by experience.

The age from two to four years, is precisely that at which a child, whose mother is necessarily much occupied otherwise, is most exposed to danger, and most apt to commit petty faults. It is at this age that the mother most needs assistance in the charge of her offspring, and is consequently, though reluctantly, compelled to resort to the aid of an elder sister or brother, who must be detained from school for the purpose. It is at this age, too, perhaps an attentive observer of the circumstances of the poor would say, that the disposition receives that tinge of bitterness, which so extensively pervades the domestic temper and manners of the poorest class. The innocent little being who is so often thwarted in his wishes, and checked in his actions, and punished for unintentional transgressions, finds himself governed by a capricious and unintelligible authority. He sympathizes of necessity with the angry feeling of which he has been the temporary cause ; and he suffers in reality from the pain inflicted on him. By imitative instinct, he treats others as he is treated himself ; and long before he is old enough to become a candidate for admission to a primary school, selfishness, in the form of violence and ill temper, has got possession of his heart ; and the primary teacher must be efficient indeed, who succeeds in eradicating these. This is no picture of fancy. But assertion is needless to those who have been observers of these things ; and to others nothing but observation can carry full intelligence or conviction.

The *intellectual* not less than the moral interests of the rising generation plead for the introduction or the farther extension of

infant schools. Along with all due care and protection, much actual instruction may be afforded to infancy; or rather the mind may be early set agoing in those directions in which it is to move, when the period of education has formally commenced. The infant stage of life may be seized as a happy opportunity for giving the mind a delight in natural objects and in useful knowledge; for expanding it to the grateful rays of intellectual light, by a wise guidance of the warmth of the heart; for making the young pupil an intelligent and exact observer of facts, an early disciple of nature and its sublime truths. If the little innocent is, according to the irrational though time-hallowed course, to be fastened down, at the age of four, to eight inches of space on a bench, and to the unnatural task of conning the arbitrary marks which are the representatives of speech; if he is to be punished for attempting to change his irksome position; if he is to be taught that it is a crime to smile, and an unpardonable offence to express his thoughts;—let at least two years of his life be spent in freedom and happiness: give him so much time in which to think and act and move as a free agent. Do not begrudge him this season of natural and strong delight in animals and pictures, and new things and new thoughts. Do not hinder him from acting out his impulses and enjoying his nature; for even thus his mind will have been so enlivened and strengthened, that he will prove, at the appointed time, more than a match for the stillest and the tamest pupil of a dull and mechanical discipline. But if all this is not to happen;—if, as is every day taking place, a clearer light is falling on the subject of early education, and our methods of attempting to gain access to the mind are becoming more congenial, more intellectual, more gentle, more cheerful; if the school room is not to be a place of bondage to body and mind; if amusement and recreation are admitted within doors as well as without, and are blended with the exercises of intellect, and the whole course of instruction is 'to pay homage to the mind and its Author;' then by all means embrace these early and precious moments, in which to begin this benign course of development and conscious progress. The good work cannot be commenced too early, if commenced aright. The first indications of the wants of the mind may be read in the natural actions and looks of infancy. Obey these; and watch them, as they become daily more numerous and varied; comply with all that are harmless; follow this course, with the necessary modifications, through the whole period of education; and there will be produced, what,

perhaps, has seldom yet been seen in the world of mind, an undistorted, uninjured, unrepressed, human soul, whose vigour, elasticity, proportion, and grace, are but dimly shadowed in the beautiful perfection of those human forms, which suggested the conceptions of the master pieces of human art.

Again ; infant schools are needed on the score of *health*, not less than of mental improvement. To the children of the poor, home has generally few opportunities to afford for healthful recreation. The common air and light of heaven are often in a great measure denied to infancy in this condition ; the unaided vigour of the constitution is left to struggle with hindrances, and not unfrequently sinks under the evils of neglect. Our primary schools seldom offer any salutary counteracting influence to early injuries of this nature : they are too generally situated so as rather to prolong or aggravate them. A change, it is gratifying to observe, is now making, by which, it is to be hoped, spacious and pleasant rooms will be furnished for these schools, and the health and comfort of the teachers and the children secured.* But this change, desirable as it is, produces of course no change on the condition of infancy—nothing to counteract the disadvantages of damp, unwholesome, unventilated rooms, at that susceptible period ; and it is one great purpose of infant schools to provide airy and comfortable rooms, in which the little pupils may spend most of the day. Were no other good whatever effected by these schools, who can estimate the benefit thus conferred by them on the community ?

An important object in immediate connexion with our present subject, is the good effected by infant schools, through their influence on elementary instruction generally, and the useful hints which they offer for the management of primary schools, and even the arrangement of the nursery. Of these highly interesting topics there is now little room to treat ; and a few only of the more important can but be briefly mentioned.

The spirit of the methods adopted in the infant schools would contribute effectually to the improvement of all elementary schools ; for these methods are strictly *practical.*

In conducting the business of education, we are too prone to forget that our influence over the mind is not direct and immediate, and that whatever instruction leaves the mind passive

* It is proposed that the rooms for primary schools be henceforth provided by the city, and not by the teachers. More suitable apartments will thus be obtained without adding to the expense of supporting these schools, or occasioning loss to those who teach them.

merely, is of no real benefit. All living and expansive action in the mind, proceeds from itself and depends on itself. We may succeed fully in conveying to the understanding a given idea, and the intellect yet receive no benefit from it in relation to the purposes of education. To obtain any substantial benefit from an idea received, the mind must act upon it, must assimilate itself to it, must identify it with itself. The most effectual influence over the mental character, therefore, is that which consists in placing objects so skilfully before the mind of the learner, that he recognizes, by his own perceptive power, their individual and relative character, and acquires his whole knowledge of them by his own activity, and not by becoming the passive object on which the mind of his teacher is to act by inculcation. The same thing is true of memory as of intellect. If we would have any fact remembered, we must show it to the sense or to the mind—if we cannot do this, our next resort should be as vivid a delineation of it as possible, whether the representation be offered in the form of a picture or a written or oral description.*

Take, for an illustration, the science of grammar as commonly taught in elementary schools; and we find that these principles, though obvious, or at least readily admitted, are entirely overlooked. The first object with most writers on grammar, even when writing for children, is the perfect exactness of a definition abstractly. Hence the great number of abstract terms in all treatises on grammar. But abstract terms, to the juvenile learner, little accustomed to generalize things, much less thoughts or words, are seldom intelligible; and when they are so, the habits of his mind, running chiefly on particulars, render them of little or no use to him, as means of progress or improvement. Grammar, then, when taught after the manner prescribed in most books on that subject, proves commonly to the young mind a formal, dull, unintelligible, and apparently useless branch of study. It is taught, in a word, too theoretically and too systematically. By generalizing to the utmost extent the language in which we convey instruction, and leaving the pupil as few illustrations as possible, on which his mind

* In this view of our subject an additional value is imparted to that excellent institution, the American Lyceum; one of the objects of which is, to render associations for mutual improvement among adults, tributary to the improvement of elementary instruction, by furnishing from these sources the simple apparatus and natural specimens used in teaching the rudiments of science. Infant and primary schools generally will thus, it is expected, be provided with materials for rational, useful, and amusing instruction.

may alight and dwell, we flatter ourselves that we are at once expanding his intellect and condensing his thoughts, and subjecting his powers to a purely intellectual discipline. But in relation to the actual purposes of life, grammar is a practical and a useful science ; and he proves the best grammarian who has carefully observed the greatest number of *facts*, whether in single words or in phrases. Hence the well known circumstance, that many of the most eminent writers in the English language never studied a page in a book of English grammar ; and that not a few knew nothing of what is called the grammar of any language.

This illustration has been used—perhaps at the expense of having been found tedious. It suits, however, as well as any that could be found, the object of expressing the difference between the infant school method, and that which is too prevalent in other schools. In the infant schools, the pupils are made familiar with facts, with objects in nature and art ; and they are not required to classify these, till they have become acquainted with their points of resemblance and of difference. The grammatical study of words is but sparingly prescribed, and is never separated from a natural reference to the objects or relations which words represent. The mind is not deadened by receiving knowledge in unmanageable masses, or dissipated by acquiring it through the medium of general terms, or enfeebled by unnatural attempts to imbibe it through the sole channel of memory, or rendered superficial by never applying what is acquired. Every thing submitted to the mind is brought, as far as practicable, within the cognizance of the senses : is offered, if possible, to the imagination and the heart, as well as to the understanding and the memory. As under the genial guidance of nature itself, the whole being, physical as well as mental, is called into action : the body ministers to the mind and the mind to the body. Knowledge is thus made to flow into the opening mind through the appointed avenue of the senses ; and no overstraining ambition is permitted to distort the mental habits, by attempting to work upon the intellect directly and exclusively.

A beautiful feature in the infant school system of instruction consists in its *bringing forward all the faculties in proportion.* On the common plan of education the whole nature lies dormant, and neglected,—with the sole exception of the faculty of memory, and sometimes, incidentally, the understanding. Spelling, reading, arithmetic, grammar, may all be named as examples of this sort of tuition, when they are taught in the common me-

chanical way. As these branches form nearly the whole routine usually pursued at schools, the young labour, for the most part, under all the disadvantages of a defective and unnatural cultivation ; and the mind, unless thrown into very peculiar circumstances in the period subsequent to school days, retains more or less the feebleness and helplessness which such a discipline naturally entails. In some cases, the disproportioned exercise of the memory gives it a morbid excess over the other powers ; and in others, nature seems to resent the violence done to it ; and the memory, so often and so long strained by application, at last ceases to act with any degree of useful efficiency.

The affections, meanwhile, have become morbid from disuse ; and the creative fire of imagination has become dim. Taste, sentiment, character, force of purpose, energy of action, are sacrificed in a blind idolatry to memory : tameness, feebleness, and indolence are entailed on the individual, as his habitual attributes. Add to all this the neglect of the corporeal frame, and perhaps the fatal decline of health ; and the picture of prevalent education is complete. Is this description a fiction? Who is there among the most favoured offspring of the system of education hitherto pursued, that can be pronounced free from the evils that have been mentioned ? Is there a reflecting man of our day who can say that his education, however ample, however splendid, has not proved entirely *disproportioned* ?

Now, the method exemplified so beautifully in the infant schools, addresses itself first and chiefly to the physical frame and the senses. Its leading object is the securing of health ; its next great purpose, is the cultivation of the heart ; and the exercise of the intellect is comparatively incidental. But this arrangement, so far from injuring the mind by neglect, only serves to inspire it with a healthy and natural vigour, which carries it onward in the career of improvement, with a velocity and a force never attained by the common methods of instruction and discipline. The human being is advanced as a living whole, and not in dissected and irregular portions.

The method of the infant schools is further recommended by the *natural and gradual progress* by which it leads the mind onward. The child's attention is turned first to surrounding objects, and not to books and lessons : nature, in its exhaustless variety and beauty, is laid open to his mind. Nothing is forced upon him ; and his advance is never hurried. By a gentle and silent guidance, adapted to the tenderness of his age, he is conducted from the observation of things to that of their relations,

thence to the tracing of thoughts, and thence to the study of language. All his movements are those of intelligence and gratification. How different and how unnatural the course usually pursued is, it is scarcely necessary to say ; violence, to a greater or less extent, being done to the mind, from the very commencement of its discipline, which consists in attempting to discriminate the confused and complicated characters used in the expression of thought.

The infant school methods are characterized by the *cheerfulness of their aspect* : they abound in amusement and recreation. Intellectual action thus becomes a spontaneous and pleasurable excitement ; as it would always be if rightly managed. The incessant alternation of activity and rest, gives no quarter to dullness and absence of mind. The glow of healthful feeling gives a force and buoyancy to the thoughts as well as to the bodily movements ; and this is no mean step towards habitual mental energy and moral courage.

On the prevailing plan of education, no definite time is assigned to mental recreation : it is left to be stolen, perhaps, from the hours of sober duty. The propensity to the indulgence of playfulness which seems implanted as a safeguard in every constitution, is quelled by the frown of authority, till the spiritless and exhausted mind yields itself to morbid lethargy and that quiescent inanition, which so often secure, at a cheap rate, the credit of gravity and wisdom. The necessity of corporeal recreation is freely admitted by every body ; but the advantage of mental relaxation is seldom adverted to. The professional man understands that if he would preserve his health he must ride or walk ; that he must refresh his eyes with the sunlight, and recruit his lungs with the invigorating air, and allow his limbs the privilege of motion. But propose to the same man the equally urgent necessity that his mind should be permitted to reinvigorate itself at the fountains of nature, or recreate itself among the beauties of art, or enjoy the delight of mingling in pleasurable sympathy with the thoughts and feelings of others, or rise for a time on the wing of poetry, or float on the stream of fiction, or watch the gleaming of wit and the play of humour—Speak of all this as essential to the full development and enjoyment of his nature, and therefore to the power of his mind, and the perfection of his character ; and you are not understood : at all events you are not listened to, or you are declared extravagant.

A close observer, however, of human nature might trace in the occasional depression or flatness of the mind, and the wandering of thought, which are so often complained of, by all men, the want of a healthful and inspiring mental regimen. In gayer communities than that of New-England, these things are better understood, and in some which are quite as grave, but perhaps more judiciously considerate of the human constitution.

In following these thoughts I have not left the subject of infant schools; for it is among their many recommendations that they multiply the innocent pleasures of childhood, and impart a cheerful tone of mind, which naturally becomes the habit of after life; that they anticipate and remove evils which too often arise from neglecting the natural propensities of the mind and the enjoyment of those intervals of healthful relaxation, which give elasticity to the spirit, and prepare it for vigorous, efficient, and useful activity.

ART. III.—*Mr. Johnson's Introductory Address at the Franklin Institute, Philadelphia.*

[In accordance with the intimation given at the close of Vol. III., arrangements have been made with a view to introduce in our subsequent numbers articles of the following description. Mr. Johnson of the Franklin Institute, Philadelphia, has obligingly afforded at our request, a copy of his address introductory to a course of lectures on mechanics and natural philosophy; delivered before the Franklin Institute, on the 19th of November last.

In this discourse, the author gives a brief history of the progress of science, and, in conjunction with it, an account of the popular institutions of modern times. In this part of the address, the statements relating to the mechanics' institutes of France, will be found in a great measure original, as well as peculiarly interesting.

The mental benefits resulting from a general knowledge of the sciences form the next topic of the address. The immediate subject of the lecture, as introductory to others, is then presented; and under this and the other heads of the address, many thoughts are incidentally introduced, which, we doubt not, will

prove interesting to the readers of this Journal, whether engaged in the important office of instruction, or desirous merely of finding information and enjoyment in the contemplation of useful subjects.]

Of all the departments of human knowledge, those which treat of man himself—his character, relations, duties, and destinies, are unquestionably the most important. Next in value are those which tend directly to render the productions of nature, their laws of action, and of rest, their mutual influences and their practical applications, subservient to the comfort and happiness of our race.

While the desires and efforts of man were limited to obtaining such objects of enjoyment, as could be derived from the forest, and the field, there was but little occasion for tasking his ingenuity to investigate the hidden properties of matter, or the curious laws of action, remote or intimate, which prevail throughout the universe. Accordingly, the Esquimaux and the Samoeid, the Arab and the Hottentot, the Nomadic Tartar and the American savage, make slight account of *mechanical ingenuity* in estimating the worth of their friends and leaders. To be destitute, therefore, of the science and skill which are necessary to the prosecution of mechanic arts, is certainly one of the characteristics of a state of barbarism. And though among some of the oriental nations a high degree of perfection, is manifested in certain manufactures, without correspondent civilization and elevation of national character, yet that perfection, it will be observed, is generally owing less to judicious applications of scientific principles, than to the severe and incessant manual toil to which an excessive population compels the labourer to submit. But in those countries the arts are mostly stationary. And it is only since the revival of learning in Europe that those sciences on which the perfection of mechanic arts depends, can be said to have made a decided progress. Even long after some of the most interesting laws of physics had become known to the learned, they were regarded rather as objects of astonishment than of utility. While philosophy taught only in the closet or the cloister, her developments, though often astonishing, led to few practical results. Scarcely did her votaries themselves suspect that they were labouring in a field which would one day become so vast. Thus the pioneer of our forests, in clearing his little domain, gazes in mute wonder at the curious mounds of earth which here and there appear,

or at the singular forms and colours of the rocks which lie upon the surface; but scarcely imagines that history is one day to convert the former into the basis of her theories, or luxury to render the latter subservient to the elegancies of life.

From the middle to the close of the eighteenth century the students of natural history, natural philosophy, chemistry, and mathematics, began to apply their respective discoveries to the purposes of life. They saw that the labours of science were but half completed when single *facts* had been observed, their *relations* to each other traced, general *laws* deduced from these relations, and a nomenclature of terms invented, by which those facts, relations, and laws could be conveyed from the mind of one philosopher to that of another. They felt that something more was wanting to accomplish the beneficent designs of nature's God in the arrangement of creation; that the materials and principles pertaining to the construction of the universe, must be made familiar to every mind, not as objects of childish amusement or vulgar wonder, but of solid pleasure and substantial utility.

To this end, every device which unlettered ingenuity had contrived, to diminish manual labour, was examined at original sources,—in the workshop of the artizan; the laws of mechanics, applicable to its construction, were adduced in order to suggest improvements or remove impediments; new devices for the attainment of similar ends were often suggested; and the spirit of invention, roused by a few splendid results, has, from the commencement of the present century, been moving forward, with a firm step, over the solid ground of science. Every application of mechanical principles which we witness, naturally suggests improvements or modifications in other processes with which we are acquainted. But when the principles themselves are misunderstood, the nature of the applications can be but imperfectly comprehended; and much time and money may be wasted in fruitless attempts to accomplish what is in itself impossible. By making himself suitably acquainted with the elements of science the artizan is enabled to substitute enlightened theory and practice for that blind routine, which, having originated in ignorance, has been perpetuated by prejudice. It is not necessary that for this purpose he should waste his time in attempts to follow the philosophers through all the mazes of speculation; in respect to many parts of science *his* labours begin where *theirs* have ended: the results of their abstract reasonings are made the bases of his practical operations. In other parts, the artist

may well demand rigid demonstration ; and this he *ought* to require in respect to those principles, which, not having the clearness of axioms, or the advantage of sensible illustration, are still of such practical importance as to be indispensable in numerous processes of art.

When entering upon our annual course of practical sciences, it may be interesting to glance at the actual state of things elsewhere, relative to the corresponding departments of instruction. We may thence derive some addition to the motives of interest, duty, and patriotism, which ought to inspire our exertions.

Mechanic's institutions, were, it is believed, first established at Glasgow, in Scotland, where the success attained was such as to cause them to be speedily introduced into Edinburgh and London, into Liverpool, Manchester, Birmingham, and Newcastle, so that, before the middle of 1825, more than thirty of these schools of practical instruction had gone into operation, throughout Great Britain. The number of these institutions in the United Kingdom is now said to exceed one hundred. In our own country, the example, set by the Franklin Institute, has been followed in the other principal cities of the Union ; and at the seats of some of our large manufacturing establishments, especially in the eastern states, courses of instruction have been given, libraries formed, and other means of diffusing the practical sciences have been devised. In the same section of the country, a class of institutions for the diffusion of popular scientific instruction, under the name of Lyceums, has recently been organized. In the space of two years since the first was founded, nearly one hundred of these establishments, are said to have been founded, in the cities and villages of New England. Their purpose is the promotion of mutual improvement among the members by lectures, conversations, and discussions, the formation of cabinets of mechanical models and philosophical instruments, and the preservation of specimens in the several departments of natural history. It is easy to predict, from observing the class of persons engaged, and the interest manifested in these institutions, that they are not destined to rise in a night and perish in an hour. It is sincerely to be hoped that the spirit which has led to these efforts, may, pervade and benefit every part of our country where skill and industry are duly estimated ; that this nation may, by timely preventives, be exempted from those appalling scenes of distress and outrage, the results of ignorance, improvidence, and want of thrift, which in

other countries render the labouring classes the sport of accident, or the victims of a reckless spirit of mercantile speculation.

No institution or course of instruction, expressly intended for mechanics, existed in France, until October 1824, six months after the establishment of the Franklin Institute, when the baron Dupin commenced his lectures before the conservatory of arts and trades at Paris. Such, however, was the success of this benevolent and patriotic individual, that before a single year had elapsed, his example was followed and courses were instituted in fifty nine towns and cities, scattered through thirty four of the departments of the French territory.

So deeply had every class of society become penetrated with the importance of this species of national instruction, that each seemed to vie with the other in efforts to promote its success.

In September 1825, the minister of marine issued a circular to the presiding officers of all the naval and other maritime stations throughout the kingdom, directing that the several royal professors of *hydrography* and *navigation* should give instructions to the labouring classes, two evenings in every week, on the subjects of geometry and mechanics applied to the arts.

By this single order the industrious classes in forty four seaports were furnished with gratuitous instruction in these important branches.

A like circular from the minister of the interior to the several prefects of departments, *recommended* the establishment of similar courses of instruction in all the important interior towns. This advice had in many instances been anticipated through the zeal and liberality of the inhabitants, their magistrates and municipal authorities; and though the same advantages for offering the gratuitous services of public professors, were not held out by the government, as were tendered to the maritime cities, yet we find, that during 1826, more than fifty courses of lectures on practical geometry and mechanics were instituted in the interior towns alone. These added to those in the seaports before mentioned, have swelled the number beyond one hundred courses, simultaneously delivered by professors, many of whom were reared under the thorough discipline of the polytechnic school, the school of mines, and other eminent establishments with which France abounds.

Prussia and the Netherlands have likewise introduced this new species of instruction into all their populous manufacturing districts; and the results are said to be of the most flattering nature. The form and texture of the products of industry are

found to be greatly improved, and the effective forces of men, of animals, and of inanimate nature, are applied in a manner to produce the greatest and most advantageous effects.

But however encouraging may be the consideration that the labours and studies on which we are entering, are at the same time prosecuted with zeal and success by thousands of our fellow men in distant lands, as well as in our own country, and however anxious we may be that those to whom we stand in the relation of *commercial* rivals, should not surpass us in skill or intelligence, yet there are not wanting motives of a higher character, impelling us to the prosecution of the duties here undertaken. Not only would we direct the attention of the mechanic to the scientific principles of his employment, in order to give a better form or greater value to the products of his labour; not only would we suggest such employment of natural forces as may redound to the greatest profit, and such uses of the abundant vegetable and mineral productions of our country, as may enhance their value as objects of national wealth; but we would develope the understanding, the faculties of memory, of reflection, and of judgment, in the *industrious citizen himself*, by furnishing worthy employment for his thoughts in hours of leisure, and by preventing the waste of those powers which heaven designed for elevated pursuits and contemplations. By furnishing hints for improving the processes of art we may also diminish the painfulness of manual labour,—increase the comforts of the artizan, and leave his mind more free for the prosecution of those studies which taste, inclination, or interest may lead him to pursue. By introducing ideas and habits of rational and orderly proceeding into the mind, and by pursuing a methodical course in the occupation of one's thoughts, an impression of the value and advantage of order is soon transferred to the whole character; the moral nature is elevated and purified, while the intellectual man is pleasantly and profitably exercised.

Does any one doubt the moral influence of these studies, and deny, because the mind is not employed directly on ethical disquisitions, that *any* moral effect can be derived from its habitual occupation? To solve his doubts, let him repair to that source of useful information, the workshop of the mechanic, and inquire, who is the apprentice or the journeyman that exhibits the most exemplary deportment, the most filial respect, the most conscientious regard to truth, the most industrious habits; that gains the unfeigned esteem of his associates, and the perfect confidence of his employer? He shall find him in the individu-

al who possesses a mind abstracted from trifles, follies, and vice, by the very love it bears to mechanical studies and pursuits,—in the youth, who retires from the place of labour to that of mental culture, or engages in curious investigations, and the construction of ingenious models to illustrate his favourite subject. Nor is it only the condition and character of the solitary individual, but the disposition of whole classes, that are meliorated by engaging in similar studies, by becoming acquainted with each other's modes of operation, plans of accommodation, and terms of art. A knowledge of what each can and does perform for the benefit of all others, creates a just sense of mutual dependence, and begets a due respect for the character and talents of our fellow men.

A detailed account of the application of science to the several arts and trades, exhibits this community of interests in the most advantageous manner; while it infuses a liberal and generous spirit of emulation into the minds of the industrious.

What has just been said relates to the effects produced upon individuals and upon the limited societies which may pursue together the study of those practical sciences that apply to their several professions.

There is another light in which the subject assumes an importance still greater; when we look upon the artizan as a private man, we find, it is true, reasons enough to induce us to wish for his intellectual cultivation; but when we consider him as a member,—and a most important member of the great and growing republic under which it is our happiness to live, when we reflect that by means of his labours and inventions a real independence of foreign nations is destined to be established, and their calculations on our wants and necessities to be frustrated, we attain some conception of the true value of scientific instruction to the industrious citizen—a citizen, who, by pursuing the arts of peace, may enrol his name among the Rittenhouses, the Rumfords, the Fultons, the Godfreys, and the Franklins of a future age, and thereby shed unfading lustre on his country;—a citizen whose career of glory and ambition will cost the quiet fireside no terrors,—humanity no tears.

The course of lectures which it is my duty to deliver during the present season, embraces *mechanics* and *natural philosophy*. A course of many months and even years would be required to exhaust these subjects, already so extensive, and still so rapidly enlarging. The selection of topics most worthy to be presented

to your consideration, where *all* are so interesting, is not the least difficult part of the duty of a lecturer.

The first of these subjects, that of *mechanics*, is naturally and necessarily divisible into two parts, which ought not to be confounded. The *first*, being purely speculative, determines, in a general manner all the laws of the equilibrium and of the motion of bodies, and applies those laws to the explanation of the principal phenomena of nature. This is called *theoretical mechanics*, and has been cultivated with the greatest assiduity, skill, and success, by men of transcendant genius, whose works are destined to shed imperishable glory on the human mind.

Of this character are the philosophical works of Newton, the *analytical mechanics* of Lagrange, and the *celestial mechanics* of Laplace.

The *second* part teaches the application of the same laws of equilibrium and motion to the purposes of society; directs the operative mechanic in the choice and use of methods adapted to the different effects which he would produce, points out the proper course of his operations, and warns him of the dangers against which he must provide. This part too has been cultivated, but (until very lately,) with less zeal, by a less number of philosophers, and with less apparent success, than the abstract branch of the subject.

It were indeed to be wished that philosophers would more frequently descend from their boundless 'domain of abstractions,' to the affairs of common life, and direct their efforts to the solution of some of those problems in practical mechanics which yet remain to be investigated. Would this be a less elevated and dignified employment, less likely to excite the admiration of the learned, than their present habitual occupations? But it would still be more useful to others, more profitable to themselves, and more certain to procure the esteem and gratitude of their fellow men. It has been justly remarked that Archimedes owes more of his renown to his useful mechanical inventions, to his defence of Syracuse by burning mirrors, to his hydraulic screw, and to his hydrostatic balance, than to all his admirable researches into the geometry of solids, and the geometry of conic sections.

Other causes, besides the love of philosophers for pure speculation, have tended to retard the progress of practical mechanics. The solution of the greater number of problems pertaining to this subject, requires the knowledge of details so numerous and so minute, yet so necessary to success, that most learned

men either despair of their acquisition, or despise to become acquainted with them.

On the contrary, practical men, to whom these details are familiar, either do not know, or do not regard those theoretical truths, which might expose defects in the methods which they follow. The advantage of any methods except those which they themselves adopt, is consequently unappreciated and blindly contemned.

Besides, the host of ridiculous or insignificant inventions, originating in the folly or ignorance of persons who imagine themselves mechanicians by intuition or inspiration, has tended not a little to bring an odium on practical mechanics, and thereby to retard the progress of the science.

Another cause which has impeded the advancement of this important branch of knowledge, is the common prejudice that great mechanical discoveries are mostly due to chance. This prejudice is probably founded upon the fact that some celebrated mechanicians have been destitute of theoretical knowledge, while equally famous philosophers have failed in their attempts to reduce their theories to practice. Chance may doubtless sometimes reveal important phenomena, or discover effects which had escaped the penetration of the learned. But to those who still persist in encouraging the hope that accident will supply for them the place of labour and study, I would exhibit the steam engine of Watt, the spinning jenny of Arkwright, the safety lamp of Davy, and the lightning rod of Franklin,—productions, in which the powers of combination, the patience of experiment, and the knowledge of theoretical laws, are far more conspicuous than any fortunate concurrence of accident.*

In view of these obstacles to the progress of *practical mechanics*, it has been thought expedient, in arranging the materials of the ensuing course, to depart so far from the usual routine, as to introduce into each lecture, besides the elementary instruction and demonstration pertaining to the subject, an exhibition of the structure, and an explanation of the use, of various machinery.

For this purpose two methods have suggested themselves. The *first* is to exhibit by designs and models complete sets of

* Those who would see the subject of practical mechanics more fully vindicated, may consult the '*Traité Complet de Mécanique appliquée aux Arts, par M. J. A. Borguis, Compositor des Machines; discours preliminaire.*' To the above mentioned work the author of this address is happy to acknowledge himself indebted for many useful hints, and much valuable information.

machinery as applied to certain manufactures; the *second*, to analyze machines with reference to certain leading principles in their structure, and exhibit each part separately. The latter method has been adopted, as having the advantage of making the subject more easily understood, and possibly of suggesting to each practical mechanic, some additional hints respecting his modes of constructing or applying machines and implements. By the aid of drawings and models it is believed that the principles will be made sufficiently perspicuous, and their applications intelligible to every member of the class.

It is not, however, to be forgotten that the class must consist, in part, of persons to whom the *elements* of natural philosophy are not yet familar. In reference to this fact, the course is intended to embrace a view of the prominent topics in this branch of science, including the general and incidental properties of matter; the laws of motion; the conditions of equilibrium and rest; the exemplification of those conditions in the several mechanical powers; the causes which modify their action; the forces exerted by solid bodies, or the general doctrine of dynamics; the conditions of rest, of pressure, and of motion in liquids, with the mode of ascertaining specific gravities; the general properties of aëriform and vaporous bodies, their motions, impulses, and other mechanical effects; the reflection and refraction of light, with the two divisions of optical phenomena to which they give rise; the reflection and radiation of caloric, with its expansive effects, and their application to instruments for measuring its intensity. The course will be terminated by an exhibition of the leading principles of electricity and magnetism.

All these subjects are more or less interesting in a practical view, and therefore deserve peculiar consideration. Several of them might afford me, separately, materials for whole courses, each as extensive as the one now contemplated.* Had these lectures been intended for nautical gentlemen, it would have required the addition of celestial mechanics or *astronomy*,—a subject in itself sufficient to absorb all the time now appropriated to this course. Incidental references only will be made to this branch, whenever they may be found convenient or necessary in our illustrations of other departments.

In discussing the properties and effects of the imponderable agents, caloric, electricity, and magnetism, it is not intended to

* The regular annual course includes twenty lectures.

invade the province of the chemist. Such effects of these agents, as do not permanently modify the properties of bodies, may be regarded as mechanical. Thus the development of electricity by the ordinary machine, its distribution, attraction, regulation, and equilibrium, are all related to the phenomena which will be presented, and the laws which will be observed, in other parts of our subject. The interesting experiments of Pictet and Leslie, which are intended to be repeated, will demonstrate that *caloric*, likewise, obeys the same laws of reflection as those which govern other matter, and the importance of this subtle principle in *practical mechanics* will be abundantly evident, when we observe that its expansive power is employed as a prime mover, in the most powerful machines ever invented by man. Having taken a hasty view of what has been done both at home and abroad, in ancient and in modern times, for the diffusion of useful knowledge; and having slightly sketched the outlines of the course of instruction designed for this department, I shall at present trespass no longer on your patience than may be necessary to offer a few suggestions respecting the manner of teaching, applicable to the subject before us.

The method of teaching the sciences by lectures, has been exposed to two objections. It is sometimes said to exhibit only a superficial view of the subject which it professes to teach, or to display only such facts as may captivate the eye, without informing the understanding; leaving the spectator in as good a condition as it found him, respecting his comprehension of causes and principles, with the exception of having produced a state of mind very unfavourable to profound study, and prejudicial even to the man of business.

At other times, on the contrary, we are told that an attempt is made to display the intricacies of a complicated subject, which require, in the auditor, much more time for reflection than the brief space allotted to a lecture will admit; and that in the latter case the effort seems made, more to display the *speaker* than the *subject*.

The former of these objections is generally made by studious men, whose learning has been acquired wholly in the closet, and who fancy that no attainment is valuable, unless made by a process similar to their own.

The latter is heard from the mouths of those who are unfurnished with the elementary knowledge, the possession of which is implied by their attendance on a course of scientific instruc-

tion, or who are unwilling, during such attendance, to make the requisite efforts for supplying existing deficiencies.

Both of these objections obviously refer to abuses of what is in itself good, and cannot lie against the practice of teaching by lectures, when rationally pursued. When the scientific lecturer becomes a mere showman, intent only on astonishing idle spectators, he degrades both himself and his profession; and when the auditor feels no stronger incitement to attendance, than the desire to beguile an idle hour, he must find scientific lectures, however delivered, ill suited to his purpose.

Comparing the method under consideration with that which confines the student wholly to his private apartment, and his attention to the *leafy* volumes therein contained, we readily perceive the advantages of the former to consist in the warmth and interest which it may inspire by the presence of numbers, by the clearness of illustrations, and by the well known influence of the living voice, compared with the silence of the closet, where the reader often sits as cold and as dull as the statue of the author over whom he is poring.

But whatever may be the zeal of the *instructer*, his exertions will fail of their full effect, unless the *learner* is willing to make his mind something more than a passive receptacle of knowledge. Little that is truly valuable is ever obtained without *active* exertions. It would be singular indeed if the sciences formed an exception.

In the normal schools of France, to which we may safely refer as models in this kind of instruction, the professors accomplished the object of rendering the auditors positively active in the acquirement of knowledge by causing their instructions delivered extemporaneously, to be reported by stenographers, and printed and distributed with all convenient expedition, so as to be in the hands of every member of the class before the time appropriated to the *conference* which was held a few days after every lecture. At this conference the whole subject, as exhibited in the printed journal, was again brought under discussion in the form of a debate, in which the students, as well as professors, bore a part. By this arrangement, the interest of every subject was sustained, and carried forward, beyond the moment of its first development. The impression it made was deep and lasting. Such was the method of Laplace, of Hauy, of Monge, of Berthollet, of Volney, of St. Pierre, of Sicard, and Laharpe.

It was probably with a view to similar effects, that the board of managers of this institution recently adopted the plan of hold-

ing examinations at the commencement of each evening on the subject of the preceding lecture, in which such members of the class as are disposed to bear a part, will have an opportunity of participating.

The adoption of treatises suitable to be used as text books by those who may find it convenient to devote some time out of the lecture room, to the study of the subjects here discussed, has had a similar object in view.

When a physical principle is to be illustrated by experiment or otherwise, true philosophy requires that the illustration should precede the abstract statement. This method will be followed unless particular reasons shall dictate a contrary course.

In order fully to comprehend the demonstrations of physical science, some preliminary instruction in the science of numbers, in descriptive geometry, and in linear drawing, is soon perceived to be indispensably necessary. This kind of instruction, therefore, ought if possible to be obtained, by all who are desirous of turning to good account, the illustrations in mechanical philosophy. In the courses of instruction in this department of knowledge, which have been established in many parts of Europe, the elements of geometry have constituted an essential part. But as the means of elementary education are *here* more widely diffused, it is believed that an American audience, composed of practical men, will hardly be found wholly ignorant of the branches of knowledge just mentioned. Mathematical demonstrations, however, when *necessary*, will be as concise and perspicuous as the nature of the subject will admit.

The science of physics has far more to do with things than with words; contests about names, terms, definitions, and the spirit of dogmatism which led to these contests, belonged to the age which is gone by: no undue solicitude will therefore be felt about these, provided the subject matter itself be made clearly intelligible. To render the practical applications clear to every understanding, resort will be had to those sensible representations which the pencil can furnish to an indefinite extent.

In the analysis and explanation of machinery, it may sometimes happen, that parts deemed essential by practical men will not appear to obtain a due share of attention. In such cases, the lecturer will receive with peculiar pleasure and gratitude the suggestions made by those whose acquaintance with details, entitles their opinions to a respectful consideration. Accounts of useful inventions are widely dispersed on the pages of voluminous treatises, and of numerous periodical publications. Indus-

try and discrimination are necessary for him who would present a connected view of the subject, embracing the advantages of clearness and method In the shops of mechanics, too, and in extensive manufactories, must a large portion of the requisite information be acquired by laborious and continued researches.

Your indulgence will, doubtless, often be put in requisition, to veil the defects of the lecturer, as he claims no exemptions from the imperfections common to mankind.

All he can promise, is, an assiduous application to the duties which have been assigned him, and a due appreciation of the encouragement which your kindness shall accord.

Happy will he be, if amidst the abundant streams with which science is every where enriching the world, he shall, like the cultivator who irrigates a favourite plat of ground, lead some humble rivulets where they may bless and fertilize a genial soil.

Art. IV.—*Education of the Female Sex.*

[Some of our readers will probably recognize in the subsequent paragraphs the sentiments disclosed in a practical and interesting series of papers, which lately appeared in the Boston Advertiser. The author, in the following article, resumes her subject, taking it up at the point at which it is left in those essays. It was our intention to direct the notice of our readers to these productions, as containing original and valuable views on female education, when we had the pleasure of receiving, through the intervention of a friend, the continuation of the writer's observations on this subject. From this source we shall occasionally draw whatever may seem likely to prove interesting or useful.]

If I have made an effectual appeal to the understanding and feelings of any, there will be a desire excited to discover, more particularly, the causes of so much practical error in domestic education, and infant management. It shall be my endeavour, at this time, to point out one or two of those which in my opinion are fundamental. The first and most obvious has been mentioned in my animadversions on the neglect of completing

the education of girls, as we do that of boys, and preparing them specifically for the station they were designed to fill, by giving them such a course of instruction as will render them competent to its duties. When a young married woman is first called to sustain the maternal relation, she is for the most part utterly ignorant of the whole field of operations into which she is so suddenly introduced, and in which she is necessitated to act. In this distressing dilemma what is she to do? If this situation were distressing to her, if she really felt the full force, and saw clearly the sad consequences of her ignorance, the evil would in some degree be palliated. She would then reflect and consider, she would act cautiously, she would seek instruction, which proverbially is better late than never; she would watch for indications, and try to reason upon them; and her zeal, perseverance, and industry, gleaning knowledge wherever she could find it, would obviate some of the sorest troubles of her helpless state. As all this sometimes occurs, we see instances where the result is beyond our expectations, if not equal to our wishes. But, in the generality of cases, there is so much thoughtlessness of the evils to be dreaded, from an ignorance that all requisite knowledge is not possessed. Each demand for information comes unexpectedly, and unprepared for—and without awakening anxiety it is answered by an application for help to any one who happens to be present, and who can propose a plan for the existing exigency.

As it respects the health of the new born babe, there are a multitude of counsellors always ready to give advice and enforce measures on the young and inexperienced mother; and in a multitude of cousellors there is safety, we are told by that word of truth, to which we can never appeal in vain, if we appeal rationally; and to which we should always appeal for our principles of conduct. But as the Bible does not point out the necessity of selecting those counsellors judiciously, this part of the transaction is usually neglected; and our friendly advisers are often as opposite in the directions they give, as they are wide from truth and nature. Nevertheless the advice of one is followed now, that of a second the next time; and thus the infant becomes a subject of experiments; and well is it for the helpless creature, if none of them are fatal, as is sometimes the case; or seriously injurious, as very frequently happens. That it can escape all evil consequences no reasonable mind will believe; and the fact accords with rational expectation; as the inevitable sickness of some kind or other, of the generality of

new born infants, sufficiently testifies. The question is, how could the state productive of these evils be avoided? I answer without hesitation, how it ought to be avoided; though I am by no means able to say how, under existing usage and prejudices, it can be altogether changed. But in my view it is an imperative duty of every young lady, previous to her becoming a mother, to seek that instruction she will require to guide her conduct in every particular respecting the management of infant children. By the aid of a sensible, able, and judicious physician, whose age, experience, and knowledge, were such as might be confided in, she could be directed to a course of reading and reflection, and otherwise led through a field of appropriate studies, which would gradually prepare her for one part at least, of the important task about to devolve upon her; and when the period of action arrived, feeling herself somewhat competent to directing all that is required to be done, she would firmly resist the intermeddling of ignorant attendants; and unharrassed by anxiety and unalarmed by fears, she would steadily and calmly pursue the right path, and find the reward for her devotion to duty, in the health and happiness of her infant.

If a young mother is generally ignorant, even after her babe is in her arms, what is the right method of physical treatment, this is but part of her misfortune. I call it misfortune, because that which would be folly and wickedness if it were wilful, becomes misfortune, when it is the consequence of errors in previous education, which the individual had no power to remedy, and of the existence of which she was unaware. Though it is the bodily health of the infant alone, that claims the attention of parents and nurses generally, it is the mind which suffers most from ignorance of the proper methods of fostering, invigorating, and developing it; and from the pernicious impressions that ignorance is constantly the cause of its receiving. The young mother, affectionate and devoted to her child as she always is, and anxious and determined to do every thing required for its health and happiness, is thus constantly neglecting and injuring both, from ignorance of what she ought to do. Had a similar plan to the one recommended for gaining a knowledge of the physical treatment of children, been pursued by the parents to complete the education of daughters, in regard to the mental development, the cultivation of the affections, and a proper discipline of the intellectual habits of infants, the frequent thoughtlessness and ignorance which prevails on this subject would have been obviated. If the young lady had been placed in a situation where a proper sense of her duty would be awakened, and

where she could have gained instruction on the deep subject of the human mind, and the formation of character, had she been taught to comprehend the power of the first associations, the natural development of the faculties, the true source of ideas, and how much their just combinations depend on circumstances which a watchful mother can control; had the most judicious methods been unfolded to her of associating and impressing what is right and true, and of preventing or removing what is wrong and false; in short—had she been duly initiated into the art and the principles of nursing her child's mind from its birth, by the best instruction to be procured on this important branch of early culture, though she might be imperfectly prepared from want of experience, yet she would be enabled to go on in her daily task securely and happily to herself and to her offspring. Gaining more and more knowledge from daily observation, reflection, and application of her previous reasoning, she would gradually advance in the science; gently and naturally enticing, as it were, her little one after her; and leading it step by step to those habits of thought and conduct, those happy and delightful associations of the pleasing and good, the true and desirable, which will result in her own heartfelt satisfaction, and the welfare and constant enjoyment of the little being committed to her care and guidance. In this happy result of the efforts of a young woman to qualify herself for the discharge of the maternal duties, by a judicious course of reading, study, colloquial instruction, reasoning and reflection, and whatever other means may be wisely selected to effect so desirable an object; I am presupposing the character of the individual to be of the right cast; her mind disciplined, affections regulated, temper subdued, and moral habits, as well as religious principles fixed; where this groundwork to receive and duly appreciate such instruction is wanting, the labour for a young mother is doubled and trebled. And as I fear this is often the case, nay, as I know it positively in many instances to be so, it will be necessary to take it into consideration; and at least to make what is, and what ought to be, the state of mind, temper, habits, and feelings of young women thus situated so apparent, that no reader may mistake, when applying my observations to her own character. I intended also to explain what I conceive to be another fundamental cause of the wrong management of young children. But my subject runs into so many particulars, in my endeavour to illustrate it sufficiently to make it entirely practical, as to render me prolix; and lest I should also be tedious, obliges me to defer, for the present, any further observations.

ART. V.—*American Lyceum, or Society for the Improvement of Schools and the Diffusion of Useful Knowledge.* Boston. 1829. 8vo. pp. 16.

THE institution which this pamphlet is designed to promote, is of a character peculiarly interesting. It forms one of the numerous results of that earnest desire of knowledge, which so extensively characterizes the present stage of the mental progress of society. It is, at the same time, original in several features of its design and organization, by which it is specifically adapted to the condition of the people of this country. It does not confine its benefits to any class, exclusively, but, on the contrary, effects its great objects, in proportion as it secures the interest and the cooperation of all. It has no peculiarity in its plan, by which it can be hindered from receiving and dispensing knowledge to any extent; and, as far as its influence reaches, it facilitates an approach to a beneficial equalization of knowledge,—an object of great moment to a community organized by such institutions as ours.

The system of universal education, which has been established in so many of our states, may be supposed by some to be, of itself, a sufficient advance towards such a result. Elementary instruction, however, (which is all that common schools can afford,) is but the letter and not the spirit of general intelligence. An institution is still needed, which may give such an impulse to the popular mind as shall carry it beyond the limits to which it is too generally confined, and turn early education to account, by imparting a desire for information, a taste for reading, and habits of thought.

Whether the opportunities offered by the whole range of our various schools and other places of education, are adequate, in all respects, to the great object of rendering all classes, and every individual in our community, enlightened men, is a question, not yet fully answered by actual results. These institutions are numerous; many of them are excellent; and all of them are improving. None of them, however, suit the great purpose of creating and sustaining a strong desire for knowledge, at that stage of life, in which the mind is apt to be too much absorbed in the engrossing concerns of business, or to be narrowed by application habitually confined to the limits of professional subjects. The point has never, perhaps, been fairly put to proof, whether the mental faculties might not retain, in

mature years, the freshness and the pliancy of youth, by being kept in constant advance on new and interesting objects, instead of being permitted, as is now too customary, to lose, after a certain time, the habits of systematic discipline and regular action. An institution which should prove successful in calling the attention of all classes of minds anew into the field of application and research,—an institution which might assume the adult, in all conditions of life, as its pupils, and send them out into the great domain of human knowledge, with the alacrity of youth and the seriousness of manhood, would open an indescribable prospect of attainment to intellectual industry. Were the intellect, in all its variety of individual character and spontaneous direction, and in all its acquired diversity of education and pursuit, sent in quest of results which were to be brought into a common depository; all minds might be enabled to contemplate science, divested of unintelligible nomenclature and sophistical perplexities. Knowledge would be offered in that variety and abundance which would be a natural result of its being drawn from so many sources, by the labour of the skilful and the zealous. Who can compute the benefits which might thus be dispensed over the whole circle of society, enriching and ennobling the mind of every individual, and constituting him a competent instructer, in his own sphere, of that generation which is to take, as its starting place in the pursuit of knowledge and virtue and consequent happiness, 'the point to which the mind has been led by the progress of all preceding ages?'

Is the result here contemplated an imaginary one? Look to the mechanic institutes of Great Britain and France; and see the artisan acquiring, at his resting hours, as much knowledge of several departments of science, as was furnished to the college graduates of the last generation; or observe him leading to the lecture room his son, yet in boyhood, to partake in his father's pursuits and pleasures. Who will venture to say to what elevation of soul that boy may not attain? Yet all this is but a step towards a general result.

The institution to which it is our intention to restrict our subsequent observations, is peculiarly adapted to the community in which it has sprung up. It is not, like the 'institutes' established in other countries, restricted to one class of society. Its form and character are as various as the condition of the vicinities in which it happens to exist. It is also subdivided as occasion requires, so as to suit every variety of objects. Its

only uniform and unchangeable purpose is the aim to diffuse knowledge. It embraces persons of all ages and of both sexes and of every variety of occupation; furnishing instruction, entertainment, and employment to all. Thus, in a country town, it brings into the same room, the clergyman, the lawyer, the physician, the teacher, the farmer, the mechanic, the manufacturer, for mutual assistance in the acquisition and communication of knowledge. The exercises which are prescribed are chiefly lectures or conversation, illustrated by simple experiments, performed with common and accessible apparatus. Instruction is imparted in plain and familiar language, principles are applied to practical purposes; and, during these expositions, not the least attentive portion of the audience is sometimes formed of females and children, who, in common with others, are substantially and permanently benefitted by what they hear and see.

The professional man is led to review his acquirements, in order to impart what in them is generally useful. He obtains valuable information, drawn from the studies of a different profession from his own; or he listens with advantage to the statement of important and interesting facts relating to agriculture or manufactures. The teacher increases, in this way, his stores of interesting instruction. The mechanic and the farmer interchange useful knowledge, or obtain clearer light on subjects connected with health, with morals, with history, or with legislation. The scarcer minerals and plants of the vicinity are perhaps deposited in the common treasury, after having been described and discussed according to their properties and their classification. The female mind is thus furnished with its share in the great banquet of science. The mother is enabled to become more intellectual in her instructions to her little ones; and the children who are old enough to accompany her, or their father, here acquire new thoughts on the value of knowledge, and the uses of education; and thus learn to cooperate intelligently with their teachers in the business of mental cultivation.

Another and a general benefit also results from the meetings of Lyceums. Intellectual intercourse aids good neighbourhood, and promotes intelligent conversation. It brings together those who had been parted by sectarian division, and affords them common ground on which to meet and converse as friends. Nor are unanimity and harmony the only moral effects of this intercourse. Frivolous and questionable amusements among the young, are not unfrequently abandoned for pursuits more

congenial to the intellectual nature ; and the change of objects is not attended, as in other cases it has been, with any injury to health, by diminishing activity. Excursions to the forest for plants, and to the mountain for 'specimens,' or experiments in the garden, the orchard, or the field, are made to combine health, pleasure, and instruction ; and the materials accumulated from these sources, furnish mental employment for the evening. Such, to a greater or less extent, according to the length of time a Lyceum has been in operation, are the results which accrue from it. The minds of all classes of its pupils, and especially the susceptible faculties of youth, are in this way enlightened, elevated, and purified to an extent inconceivable by those who have not had opportunity personally to observe the effects of this truly excellent institution.

Here we cannot omit the opportunity of giving a brief anecdote, in illustration of what we have just stated. A few years ago, a young woman, (residing in a parish situated not far from Hartford in Connecticut,) became so much interested in some remarks which she happened to read on the subject of geology, as to feel desirous of obtaining instruction in that department of science. An opportunity offered itself, by an individual visiting in the village, who was induced to make a short stay, and in that time to give a few lectures, and make several excursions in quest of specimens. Previous to this time there was not, perhaps, an individual in the place who knew anything of the science. But the young lady who has been mentioned, was successful in making up a class of her acquaintance ; and, within two years, the impulse thus given to the minds of young people was so extensive, that there were in existence, in the town alluded to, and its vicinity, numerous collections of specimens, embracing, perhaps, every accessible variety in that and the adjacent regions. The cabinet of one of the more diligent pupils contained, at the time mentioned, an amount of five hundred articles.

In illustration of the perfect simplicity of the plan of the Lyceum, and its easy adaptation to circumstances, it may not be uninteresting to mention the origin of the first, probably, of these associations in New England. Two teachers, boarding in the same family, proposed, as a pleasant and useful way of spending one evening in the week, to read to those of the family who chose to attend, one of the 'Conversations on chemistry,' explaining what might not be otherwise understood, and performing the easier experiments. The family invited a few

neighbours to the exercises of some of the first evenings. But the room was soon found too small to accommodate all who wished to attend; and the school room was obtained for the purpose. Conversations and questions on the subject selected for each evening, were encouraged; and, shortly after, regular meetings were held for mutual instruction on other subjects besides that originally introduced. Classes were formed for each of those subjects; and every class occupied an evening, or a part of it, in conversation and experiments for their own mutual instruction, and, at the same time, for the benefit of the other classes. The meetings were held more frequently than at first; and thus, in the course of a single winter, a great variety of useful and important subjects were studied and discussed; while, by the subdivision and classification of the exercises, each member of the association was enabled to devote his chief attention to the branches most interesting to his mind, or most intimately connected with his daily business.

The Lyceum, though thus evidently adapted to the circumstances of the inhabitants of a village, by the few demands which it makes for preparation or preliminaries, and the moderate expense at which it can be maintained,—is not by any means necessarily restricted to a narrow scale of operation. With liberal arrangements, it may be transferred to any sphere of intellectual condition or progress. It would greatly accelerate the advancement of the elder classes at academies and preparatory schools, at high schools and at colleges. Indeed, a weekly meeting for the interchange of acquirement, would be, perhaps, no slight aid to instructers themselves.

Literary clubs, and especially those formed by the professors of colleges and universities, are now out of date, in most parts of the world. With all their faults, however, they served many excellent purposes which, even in our day, have not ceased to be desirable. The familiar meetings of the intellectual *primores* among our fathers, were admirable opportunities of personal and professional improvement. True, they were sometimes abused into occasions for vanity and display; and their inspiration was too frequently derived from something more palpable than 'the wine of immortality.' But objectionable as they were in some respects, they still dispensed much good. They kindled afresh the minds which were shedding light on all cotemporary intellect,—the minds which we of this generation were early taught to venerate as the great fountains of instruction. May

not something of a similar, though a more sober, character, be devised by the instructers of the present day ?

Seclusion is favourable to thought. But this maxim needs a free interpretation. The art of conversation—that most valuable and difficult attainment—is more essential to a teacher than to any other man. Yet no class of men, perhaps, more sedulously avoid appropriate opportunities of acquiring it. Stated meetings of the literary and scientific instructers at our highest institutions, would probably not only be attended with immediate professional benefit, but through the influence of example, would operate powerfully and beneficially on the minds of the young, and cherish that spirit of personal application and severe study, which is indispensable to the true prosperity of seminaries of learning.

The adaptation of the Lyceum to the intellectual interests of cities, is at present a subject of discussion. But inquiry on this point is perhaps superseded by facts already familiar. We may refer, for instance, to the city of Boston. Here, we can enumerate several institutions or associations, all corresponding to the Lyceum, or embracing a part of its objects, and therefore bearing unquestionable testimony to the demand for Lyceums in cities. In Boston, there are already established the lectures at the Mechanics' Institute, and at the Mechanics' Association, besides occasional public lectures by individuals,* and private circles formed for various objects connected with intellectual improvement or gratification. These all suit in their respective places, the objects of the Lyceum. It is thought, however, that there is still room for a course of lectures, such as may lead to the formation of local associations in various parts of the city. These associations, it is believed, will become numerous as soon as an appropriate course of lectures shall have been established, to furnish them with subjects for exercise, and to give a direction to inquiry and reading. The lectures are expected to be of a general character, such as may render them useful and attractive to young people engaged in mercantile or miscellaneous business. Teachers in the elementary departments of education, and the instructers of Sunday schools, will also be furnished, through this medium, with information which may afford useful materials for personal and professional improvement. Parents, and in particular mothers, will, it is to be

* As an instance in point, we may mention the course of lectures now delivering by Mr. Holbrook, which is chiefly designed for the benefit of Sunday school teachers.

subjects many of which may form instructive and pleasing topics of conversation with young children, and may contribute to give hoped, embrace such opportunities of becoming acquainted with their minds an early and salutary direction towards the vast stores of information, which are contained in external nature. The infant schools show strikingly how ready the youngest children are to receive instruction on such subjects, and what a benign power over the dawning mind of childhood may be acquired by teachers and parents who direct their own attention to these departments of science.

It is perhaps one of the happiest features in the plan of the Lyceum, that it is so devised as to suit the local circumstances of any part of our country ; adapting itself to the wants of villages and neighbourhoods, while, in its ultimate extension, it may advantageously, and, at the same time, easily, become a great national institution, comprehending in its influence the collected advantages of the general associations formed in towns, counties, and states. The benefits which might hence result to the interests of popular education, in all parts of the Union, are great and obvious. Through this channel, the improved methods of instruction and the general diffusion of education, which characterize one region of our country, might be expeditiously transferred to others ; and the great bond of moral and intellectual union existing among these states might thus be strengthened and extended. That this result is highly probable, will be evident to all who recollect that the main objects of the Lyceum are the dissemination of knowledge, and the improvement of schools,—not through the comparatively slow process of legislation, or the progress achieved by individual effort, but by the direct action of general sentiment among the people, and by their mutual and combined endeavours. The object to be promoted by this concentration of effort, is one universally intelligible. It involves the social and personal interests of the whole community, in conjunction with those which, with more or less force, are felt by every parent who takes an intelligent care of the education of his children. Extensive results require, it is true, adequate time in which to be matured and rendered apparent. The public mind, however, is already in a good degree prepared for them. In the state of Massachusetts, town Lyceums are, in several instances, uniting into general associations for their respective counties, on the plan presented in

former numbers of this journal.* In Worcester county, such an arrangement has been for some time matured ; as those of our readers will recollect, who perused the closing number of our last volume, which contained the address of Mr. Barton to the delegates from the various associations in that county.

By those who are acquainted with the general feeling in regard to this institution no doubt is entertained, that, at the requisite interval of time, the next step in the progress of union and cooperation will be taken, and a still more general society formed, comprehending a representation from each of the county associations. There are, we are aware, individuals who look on these more extensive measures with a degree of anxiety. Happily, there is but one sentiment on the value of the local Lyceums—indeed there can be but one, in the minds of all who derive pleasure from the contemplation of the mental advancement of society. The apprehension above alluded to, is grounded on a mistrust in relation to the expediency of the general principle of associations formed for any object of a moral nature. The tendency of all associations of such a kind, is, in the opinion of some, to diminish individual effort, by diminishing individual responsibility, and to merge individual character and influence in those of a mass,—removing or impeding, in this way, the action of some of the best motives by which human nature is actuated, and accumulating and concentrating a power which, in the hands of the unreflecting, may be wielded to the detriment rather than to the benefit of society. To us it seems, that, in this view of the subject, one great and important principle is entirely overlooked :—we allude to the fact that every step in the progress of the Lyceum, or of any other popular institution for disseminating knowledge, is rendered safe, by the wider diffusion of intellectual light by which it is attended. Detach the moral influence of a Lyceum from its intellectual character, and you do indeed make it an engine of uncertain operation and questionable results. But fortunately this cannot be done. The moral power acquired by these associations is the pure result of intelligence, and its character is thus secured and guarantied in favour of mental freedom. Every Lyceum is, in fact, a local safeguard of liberty, imparting a nobler impulse and opening a wider scope to the general mind, by the light which it sheds, and the energy which it excites. The general Lyceums suit the same purpose, only in a more exten-

* See in particular vol. iii. p. 503.

sive sphere; the diversity of opinion on moral and religious subjects, which exists among its members, being a sufficient security that no injurious exercise of moral power will ever be attempted.

The Lyceum, however, it should be recollected, has asserted no claim to the sort of influence which is dreaded by some. Such influence can only be incidental. The institution in question professes to be one of an *intellectual* character; the operations about which an apprehension is entertained, are designed solely to facilitate intellectual objects; and these, it should not be forgotten, are, as far as they have been attained, found to issue in unquestionable good, in the opinion of individuals of widely different moral sentiments, and in local situations where public opinion is pretty equally divided on several important points of religious faith. For our own part, we hail this pacific and benign institution, as a friend to the general peace and harmony of the community; and regard it with peculiar pleasure, as offering, in some measure, an antidote to the differences of opinion and of feeling, which so generally exist on matters of belief. Much more might be said, here, on the impossibility of collective Lyceums producing any other than salutary effects on the mental condition of the community. In particular, the safety of delegated and representative agency might be advanced. But the limits of this article compel us, for the present, to omit the consideration of such topics; and, indeed, it is perhaps unnecessary to enter upon a laborious argument against an apprehension so vague as that to which allusion has been made. There will ultimately, we believe, be but one opinion as to the safety of entrusting the human mind with knowledge, or a community with facilities for diffusing it.

It may not be amiss, however, to state here a few of the advantages which have already resulted from the combined operation of Lyceums, when associated in towns and counties. Peculiar facilities are thus afforded for the acquisition of local information. Topography, mineralogy, botany, and zoology, may be selected as instances. An unassisted individual, or a single association, must prosecute these branches of study with great labour or expense,—and, after all, but imperfectly. Establish a number of Lyceums over the surface to be explored; and the labour is so subdivided, and is thrown into such a number of hands, that a thorough and extensive investigation is easily and readily made. By the intercommunication of these establishments, a teacher or a parent becomes possessed of a

vast accumulation of the best materials for instruction; the student is furnished with objects of application; knowledge is given and received; and the sphere of mental action and of mental opportunity is greatly extended to all. But without a regular arrangement, resulting from organization, no facilities of this nature can be certainly or permanently afforded.

Another advantage of union and cooperation among Lyceums, is the interchange of libraries, specimens, apparatus, and lectures. The benefits resulting from such arrangements, it is unnecessary to describe in detail: they multiply, to a vast amount, the mental resources of the community, and constitute every individual rich in intellectual advantages.

Another important object to be gained by uniting the several Lyceums in a county or a state, is a beneficial uniformity in methods of instruction at our common schools. These have hitherto varied at the caprice of every successive teacher; and the perpetual changing of books, systems, and branches, has harassed the parent without benefitting the pupil. The same teacher, (it happens from various causes,) is seldom long employed in the same vicinity; and, when a change takes place, the children instead of going regularly forward in a course of instruction, are usually put back to a new elementary book, which happens to be preferred by the new teacher. Year after year the schools are subjected to the repetition of these evils, which can be effectually checked only by the influence of a general institution, such as the Lyceum, where teachers themselves may be thoroughly taught, and acquire such light on the subjects which they teach, as shall lead to a general acquaintance with the best means of imparting knowledge, and, by these means, to a sufficient degree of uniformity to avoid the consequences of incessant change, and irreconcileable diversity in modes of teaching.

As an institution adapted to the advancement of popular education, the Lyceum possesses many excellent characteristics. The general and substantial improvement of education cannot be made to proceed from specific measures. Legislation to this effect wears too much the aspect of compulsion; and a seminary instituted expressly for the instruction of teachers would, in all probability, be found a remedy too costly for the means of individuals whose remuneration for their daily labour should be as low as the rate now common in the payment of teachers. A school of this kind supported by the state, would need a vast ap-

propriation, to render it useful to all who would be desirous of partaking in its benefits.

The Lyceum offers to teachers excellent opportunities for the general improvement of the mind on various subjects connected with their daily business ; and in most instances a course of appropriate professional reading and conversation is added to the other exercises of the institution. The effects which have followed these arrangements, are beneficial and extensive, beyond the conception of those who have not had personal opportunities of observing them.

It is a peculiar characteristic of the Lyceum, that, while it renders effective aid to education, by the opportunities which it offers to teachers, it communicates an intelligent and deep interest in the prosperity of education, to the mind of every individual who takes part in its exercises, and thus calls forth the whole intellectual and moral force of vicinities, in favour of the improvement of schools. In this respect, in particular, it is happily suited to the circumstances of American society, in which all effective general measures for the promotion of common education must emanate directly from the people. The Lyceum is on this account better adapted to extensive usefulness among us, than any of the popular institutions which have arisen in Europe, could be ; most of these being restricted by their objects, and even their designation, to the interests of particular classes of society. The Lyceum admits members from every condition of life, and from every occupation, and is peculiarly accessible to the agricultural class,—a circumstance by which it is eminently adapted to the actual wants of our population.

The four great requisites of an institution for popular improvement, are lectures, or conversation ; mutual, interrogatory, and experimental exercises ; books ; and apparatus. These are the chief implements in the whole process of mental cultivation ; and as surely as they are introduced into the humblest village, there will spring up intellectual activity, efficiency, and skill, extensive and enlightened views on every subject important to human welfare, intelligence and enterprise in business, and a moral elevation of character, insuring a pure and diffusive happiness.

For these reasons it is, that we wish to see Lyceums established throughout the United States, to see them promoted by general association, and every other facility required for their extensive and free and permanent operation. Whithin a short

time after the general organization of the Lyceums in a state, (take that of Massachusetts for example,) several objects may easily be accomplished, which will contribute immediately and effectively, not only to the diffusion of intelligence, but to a fuller command of the natural resources of the state. In many of the town Lyceums, the requisite investigations are in progress for the preparation of histories of their respective towns; surveys of the surface and soil of their vicinities, and, in not a few instances, geological surveys, are advancing; while, in other places, much attention is devoted to the construction of local maps. That the inhabitants of all parts of the state may be enabled to avail themselves of the interesting and important facts thus ascertained, a common deposit is required, and a regular channel of communication becomes indispensable. Without a definite organization, however, it is in vain to expect such results. In a political point of view, also, the effects of the regular and general operation of Lyceums become highly important. Extensive and peculiar facilities are afforded by these establishments for prosecuting public enterprises connected with internal improvement, in the department of roads and canals, by the minute and accurate local knowledge which they bring to the aid of such undertakings. But on topics of this nature we have not at present room to enlarge.

The Lyceum, when considered in its connexion with the advancement of general education, appears likely to prove as permanent in its operation as it is deservedly popular in its character. It offers no impediment to existing institutions of any order: it enters into competition with none: it cooperates with all in facilitating the acquisition of knowledge, and in producing and cherishing a desire for superior instruction. Through the services of the professional men who rank themselves among its friends and patrons, it derives much benefit from the higher seminaries of learning, and by the light and guidance which it draws from such sources, tends to make the whole community more fully acquainted with the value of these institutions. To this class of men the Lyceum has been largely indebted for the improvement of its exercises, and the rapidity with which it has advanced in general estimation; and on them it must frequently depend for the commencement of its local operations. To this last fact we should be happy to attract the attention of men of liberal education; since, through their aid and exertions, so much may be accomplished in enlarging the sphere of mental

action and enjoyment to all classes of society. The benefactors of the mind are the greatest benefactors of the human race; and to this noble eminence may every man of education raise himself, who is willing to impart a portion of the mental wealth with which he has been entrusted, and to aid others in their progress towards the expansion and elevation of soul, which he himself enjoys as the great good of his intellectual advantages. If one or more professional men in every town of New England would lend their countenance and assistance to the establishment of a Lyceum in their respective vicinities, the stream of useful and scientific knowledge might be brought to the door of every family; and thus would a true and full value be given to the benign system of universal education.

The pamphlet which has been the ground of the preceding remarks, gives a clear and concise account of the character and design of the Lyceum,* and indicates some of its prominent benefits. It is well fitted to prepare the way for the establishment of such associations where they have not been introduced. But as it is already disseminated pretty widely, and is probably in the hands of most of our readers, to make quotations from it would be unnecessary. A large edition of it, circulating generally, with copies deposited at places of common resort, would, we think, prove useful to the moral interests and character of society. In the meantime, it will, we hope, be extensively lent for perusal, by all who are in possession of it; as the good to be thus effected by it is all the compensation desired from it by

* Of the propriety of this designation being attached to a popular institution different opinions are entertained. The name, however, has now become current; and a change would be impracticable. It would be but justice, however, to the individual who originally applied the name, to state that, at the time when it was adopted, the only institutions which resembled those for which the term is now used, were the *Lycea*, such as still are found in various parts of the country, but established chiefly for objects connected with natural history. From these the name was borrowed, in anticipation of what in several instances, has actually happened; societies formed for the limited purposes just mentioned, having identified themselves with what are now generally called Lyceums, by extending their plan so as to admit the natural sciences generally, and along with these several other branches of useful knowledge. It was not, then, it will be observed, the ambition of assuming a learned name, that led to the choice which was made, but the natural concurrence of circumstances. On the whole, there seems to be no solid argument against the denomination selected: and it was certainly a matter of consequence to adopt one which should not tend to limit the operation and the advantages of this institution, by apparently restricting its members to one class of society or one department of business. No one *English* word can be found which would suit the purpose of distinct designation; and if no evil more serious should ensue, than the formation of an awkward plural, (Lyceu*ms*,) there will ultimately be little room for regret on this score.

its disinterested author,* who, in the true spirit of philanthropy, has devoted so much of his time and labour to the intellectual interests of the community.

ART. VI.—*Maternal Instruction.—Hints to Parents. In two parts: Part one, On the Cultivation of Children. Part two, Exercises for Exciting the Attention and Strengthening the Thinking Powers of Children. In the spirit of Pestalozzi's Method. From the third London Edition.* Salem. Whipple & Lawrence. 1825. 12mo. pp. 72.

MUCH has been said, and a few excellent works have been written, upon the subject of early education. Many rational and efficient methods have been suggested to aid parents, in the discharge of those peculiar duties in which it is their happiness to engage. But from the anxious and devoted mother, is the inquiry still repeated ;—How shall I employ, interest, instruct, and govern my child, to make it intelligently good and happy ?—To answer this inquiry, in part, by presenting to the view of mothers, some of the very valuable suggestions contained in the pamphlet above mentioned, is the purpose of this article.

From no system of early education, are the results happier than from that of Pestalozzi. By an attentive study of the primary operations of the infant mind in acquiring, retaining, and expressing its ideas, this distinguished philosopher, obtained a knowledge of its nature so accurate, and devised such methods for the harmonious development of all its powers, as to be able to operate upon it himself, with certainty, and success. An observer of nature, by this was he taught to lead the infant mind onward in a regular and continuous progress towards truth and virtue ; and by its perceptions of the immortality of the one, and the beauty and loveliness of the other, to induce it to put forth its own volitions, and become the chief agent of its own advancement. It was by quickening and directing the activity of those influences, which the works of nature, and of provi-

* Mr. Holbrook, to whose exertions chiefly the Lyceum owes its origin.

dence, are constantly exerting upon the infant mind, and revealing its latent powers, that Pestalozzi looked for successful results. He did not substitute the influence of his own mind, for that of nature and providence, and thus pervert their sole purpose; but availed himself of both. It was the reciprocal influence of internal and external nature upon which he relied. Instead of the mere copy of nature, as presented in books, he led his pupils to the volume of external nature, and in its broad and varied page, he traced the beauty and harmony, and symmetry of the characters there drawn by the pencil of its divine author. He loved nature himself; and it was the perception of this truth, that awakened the same love in his pupil. They loved and studied nature together.

It was the great purpose of Pestalozzi, to inspire mothers with a just sense of their value in the scale of being; and, by the simplicity of the manner in which he taught them to discharge their high duties, and the happiness inseparable from their performance, he hoped to induce them to lay early the only broad and sure foundation of virtue and happiness for their children.

'It was his aim to excite in pareuts the desire to take advantage of the invaluable opportunities afforded in the DOMESTIC CIRCLE, for fostering the infant mind in the simple, pure, and artless way which nature has traced; to inspire them with a sense of their *duty;* and the widely extended and important consequences resulting from the neglect or fulfilment of this duty.'

There is no relation more sacred than the *maternal.* It is to the mother that the care of infancy is entrusted. Nature has constituted her its guardian, and involved the mother's happiness in that of her infant. It is this maternal sympathy, that becomes the influence by which its nature is developed, and its primary education achieved. It is the invariable operation of this influence of kindness and love, that begins and continues the progress of its being.

Infant education commences with the very dawn of infant existence. At this early period, maternal care should be chiefly interested in securing the physical comfort and happiness of its sweet charge, by the invariable exercise of the kindest and tenderest offices of affection and love. The infant's helplessness and innocence appeal in the strongest and most persuasive language for safety and protection to the mother's heart. Her feelings will prompt her to attend to its numerous wants, and by the exercise of those charities, which the author of her na-

ture, has wisely fitted her to confer, to anticipate, supply, and relieve them. It is by these repeated acts of affection, that her infant becomes conscious of the existence of the benevolent being, from whom its happiness is derived. The sweet fountain from which it draws nutrition, the soft bosom on which it reposes, from whose embrace it awakes to meet the eye of maternal fondness, and the caress of maternal love, awaken in its breast. the feelings of conscious affection; and denote the commencement of its *moral* life. As an agent of the divine instructer, the mother will feel herself entrusted with a spirit, destined for immortality, on which she is urged, by every consideration, to shed that redeeming influence, which alone can preserve it from earthly pollution, and conduct it to the skies.

Her infant, now in paradise, she will endeavour to sustain there, by removing forbidden fruit from its view. By methods suggested by its nature, she will develope the affections of its heart, and direct them in the attainment of good. Herself, she will regard as the primary object, to which its young affections should most fondly cling ; she will adhere to the indications of nature ; knowing that on this depends the reality of her hopes, that they are the voice of the divine instructer, whose friendly monitions, are thus given to aid her in her good work.

Having obtained by the influence of love and kindness, the whole affection and confidence of her infant, she has put herself in possession of a power over its volitions, that will ensure its ready obedience. She will win to obedience by this influence. Her requirements will be few and simple : they will be mere modifications of nature's. In case of transgression, it points to the resulting unhappiness, and teaches, by experience, the inseparable connexion between disobedience and misery, between obedience and happiness. Appealing to the standard which she erects for the guidance of its actions, she creates the round of its duties, and the perceptive conscience which approves them ; adherence to its dictates soon makes them habitual ; the will becomes rational, and leads to the cheerful and happy performance of duty. Fear and coercion she keeps out of sight.

The mother will early fix, by experience, the great moral rule in its mind : she will lead it to see that the only way to secure its own happiness, is by promoting the happiness of others—of all around it that lives, and moves, and breathes. It is by the perception of this truth, that her young philanthropist will feel the pleasures of a moral existence.

To nature she will turn its attention; and from the variety and beauty of *her* productions, she will fill its mind with thought. She will address, in succession, all the faculties of its being.

Alive to every surrounding object; conscious of its innocence; enjoying, and returning the affections of all with whom it dwells, her infant's mind, in due time, recognizes a higher power, which it feels is good. To this power it extends its affections, and rejoices in being the recipient of its love. Religious feeling rises in its breast, and sheds a kindly influence on all its pursuits. Assured that God is ever present; that in him it lives and moves and has its being, the feelings of reverence, and gratitude, and devotion, and love, spontaneously rise in its breast, accompanied by a sense of the divine approbation, which lead to the constant, and cheerful, and conscientious performance of duty.

Without attempting to follow the course of arrangement, in the selection of thoughts, from the pamphlet which we have mentioned, we will, in this connexion, introduce some observations regarding the maternal duties, of which we have above attempted an outline.

'For cultivating the *moral* principle, the mother must, 1st. Endeavour to excite in the heart of her child, *gratitude*, *faith*, and *love*; and this will be easy, as every mother is possessed of the means. Maternal affection is the powerful spring by which she can put the child's heart into action, and give a just direction to all its internal feelings and applications.

2d. She must accustom her child from the earliest infancy to unconditional, prompt, and cheerful obedience.

3d. Let every mother, by practice, as well as by precept, endeavour to act so as always to present to him the moral law, by intuition; a child has not only a quick *ear*, but a quicker *eye*, than we generally believe. No success can be expected in education, till we abandon a religion of words, and take up that of deeds; till doing supersede talking; till we have more practitioners than preachers.

'The *moral* principle may be further strengthened, by giving children a habit of punctually fulfilling their daily duties; thus teaching them the inestimable value of time; of respecting other people's property, and particularly the property, however intrinsically trifling, of their young companions; of kindly treating their infant brothers and sisters; of voluntarily renouncing and denying themselves comforts and amusements, in order early to acquire a degree of self-command, of humility, and of christian affection, by accustoming them to reflection, and gradually training them to consider the *end* of every action: this habit will not only save them from many follies and errors, but will lead in time to a conscientious employment of every talent; to that

"Wisdom whose fruits are purity and peace."

'A child should not be left in the first period of its development to the action of its own will: its moral guardians, its parents, must guide

the infant will, till obedience has raised delight, and it feels it has done right; this feeling is the fruit of the development of the moral principle in a child; and it is only by a continuance of the operation of this divine force, that the child's *sensual* will becomes *moral;* and it finds in itself an inward guide, which incites it to its ultimate end.

'To diminish the power of the sensual will, and to animate the activity, energy, and operation of the moral principle, is the grand secret of education, and requires the tender, skilful hand of parents devoted to their duty.

'*Gratitude*, *faith*, and *love*, are excited within the child, by acts of kindness and love. By means of these, his mother appears to him as a higher, but, at the same time, as a benevolent power; she consequently becomes to him a representation of the Deity, before he knows the Deity, and these sentiments constitute what may be called the elements of religion.

'The name of God is mentioned as the common *Father of all;* to whom his parents are indebted for every blessing they possess; he must therefore serve and love God, and the desire to please *him*, must be the motive of action.

'Every propitious event, every physical and spiritual blessing, is attributed to God. Each time he has performed some good and moral deed, the child is reminded of God; for any sort of succour, protection, comfort, and bounty, thanks are rendered to God, in the presence of the child, from the fulness of the heart.'

On the means for awakening the child's *perceptive* powers, the following *observations* and *exercises*, are worthy the notice of every intelligent mother.

'A child's mind must be awakened by its instructer's *mind*, not by its instructer's book—life must act upon life—the heart is the seat of life; and the heart of the child must be acted upon by the heart, visible in the countenance, the voice, the manner, the whole expression of the instructer.

'From their *earliest age*, children must be treated as beings holding a high rank in creation; endowed with the heavenly spark of reason, which in the domestic circle should be fostered by the united efforts of the father, mother, elder brothers and sisters, so as to embrace the *whole* child; or, in Pestalozzi's words, to engage the powers of *hand*, *head*, and *heart*.

'When the child begins to notice objects and sounds, his faculty of intuition may be exercised. The mother repeatedly and distinctly pronounces the name of every object upon which he fastens his eyes. If it is possible, she lets him handle the object, and notice whatever can be noticed respecting it by means of the senses. In order to increase his power of sight she frequently shows him more distant objects in nature, and leads him to observe many things *essential* to them. In a similar manner, the power of hearing and feeling may be excited. But whatever is done should be by slow, or rather *imperceptible* degrees. Particular care must be taken not to fatigue or disgust, by pressing him beyond his wishes or his powers; every little exercise should be made agreeable and cheerful, with the view of creating in the tender mind, a desire and a love for instruction. The affections alone are the cause of all knowledge; what we do not love, we scarcely ever attain.

'When a child can pretty well pronounce words and short sentences, his mother chooses some object likely to interest him; shows him the whole of it; lets him try distinctly to repeat the name of it; then to analyze it, by simply naming all its essential properties, as form, colour, and weight. The object is handled, looked at in every direction, and if possible, his sense of hearing is exercised upon it. As the mental powers gain strength, all *particulars* of objects are denominated; and he is encouraged to repeat them, articulating distinctly every word. Whatever the mother imparts, should be in a cheerful, affectionate manner; and these little exercises will not fail to become a most agreeable occupation.

'Exercises may also be given with small wooden cubes, oblongs, narrow slips of wood of different lengths, cones, squares, pyramids, or other figures.* The mother points out and denominates every thing respecting their form, superficies, angles; their length, breadth, and thickness; and encourages her child to endeavour by degrees to do the same. She afterwards alters the position of the figures, and asks what changes have been made. She produces by placing the figures together, different bodies, and asks what new forms have been produced. The child himself may be led to take pleasure in these attempts, and to give an account of what he has done.'

Art. VII.—*Geology for Schools.*

Few subjects have a stronger claim to a place in a system of popular education than geology. Numerous reasons urge its introduction into every school.

1. It is nearly allied to geography; and, like that, is calculated to enlarge the minds and extend the views of children, by acquainting them with the earth they inhabit. If it does not inform us of the situation and comparative size of continents, islands, and mountains, it teaches us what continents, islands, and mountains are composed of. If it takes no notice of cities, kingdoms, and empires upon the earth, or the changes which have been produced upon its surface, by the industry or the ravages of men, it describes the more sublime changes it has suffered, by the hand of time, and the agency of earthquakes and volcanoes. If it gives no history of the nations that have risen, and flourished, and fallen, upon the earth, it contains a history of the earth itself. It informs us what it was when it

* To aid those interested in the early education of children, a collection of apparatus, accompanied with a book, has recently been prepared by Mr. Josiah Holbrook, entitled 'Easy Lessons in Geometry.'

was without form and void, what changes it suffered when the fountains of the great deep were broken up, or when other convulsions shook it to its centre.

2. It is an interesting science. It opens to our view a new world, and presents us with numerous objects of beauty and of interest, before unnoticed. The most barren ledges, the commonest rocks and walls by the wayside, destitute of anything to admire or notice, show to groups of young explorers, that these have not merited the long neglect they have suffered; that they contain much that is rich and beautiful, not merely when arranged on the shelves and cases of a cabinet, but when placed on the mantelpiece of the parlour or drawing-room, and furnishing instruction and delight to the most elevated minds.

3. It is among the grandest of the sciences. It leads us to view, with increased admiration, the towering mountain and awful precipice, and induces and enables us to examine with greater ardour, and more exalted delight, those features of the earth, which never fail to excite ideas of sublimity even in the rudest mind. We learn from it, that amid the lofty aspect, the terrific grandeur, and the wild confusion of the Alps and Andes, there is order and regularity, which evince the skill of a wise and all-powerful architect. Arrangement amidst apparent disorder, a vast storehouse of riches overhung by forms of terror, objects of the highest beauty grouped beneath the awfully sublime, afford to the passing geologist a moral as well as an intellectual banquet.

4. It gives new interest and increased utility to our journies and our walks. A person, with the slightest knowledge of geology, never passes from one country or place to another, without finding much to admire, and much to increase his store of knowledge. If he finds no thriving village, no field covered with the fruits of the farmer's industry, no fertile tract groaning under its load of stately forest trees, or smiling beneath its dress of beautiful verdure, he still finds in the barren plain or the broken ledge, much that is beautiful, rich, and instructive.

5. It furnishes a healthful and instructive amusement to the young. Wherever it has been introduced into schools, the pupils have taken more or less of their pastime in examining and collecting specimens of minerals within their reach. A geological excursion is uniformly preferred by them to their ordinary sports, too often calculated to dissipate their minds, and unfit them for patient and successful application, when they return to their school rooms or their books.

6. It teaches children to be observing. A thousand objects before unnoticed press upon their view; their imagination and taste are awakened, and called into vigorous and healthful exercise in discriminating the aspects of objects. Their minds once put upon the search to discover what is beautiful and rich in the mineral kingdom, are led to examine other parts of this wide creation; and wherever they go, or whatever they see, they find something to admire, and to convey to their minds, entertainment and instruction.

7. It leads to useful discoveries. Wherever the science of geology has been introduced into schools, or to the attention of other young people, valuable discoveries have been made to enrich the treasures of science, or to furnish new sources of industry and of wealth, both to individuals and the nation. If once introduced into all our schools, the whole country would be put under the most minute and rigid examination, and compelled to yield up its treasures, now buried beneath the surface of the earth. In New-England, alone, from one to two hundred thousand, young, but ardent and efficient surveyors might be induced to afford their gratuitous and cheerful services, to explore our resources in the mineral kingdom; and while they amused and instructed themselves, they would make important accessions to the public treasures of science and of wealth.

8. As the adoption of geology as a branch of common education uniformly leads to a thorough examination of the natural features of the country, it would prepare the way for obtaining maps of all the towns where it should be introduced. Considering the trifling expense at which lithographic prints of town maps can be procured, and the important vehicles they would be to convey a minute and accurate knowledge of the character and resources of our country to the minds of its inhabitants, few subjects better deserve the immediate attention of every town.*

9. No science is more practical. It acquaints farmers with the nature of their soils, and the best methods of improving them: civil engineers with the materials for constructing roads, canals, railways, wharfs, dams, &c., and the proper method of combining them: artists with the origin and nature of paints, and other substances in common use, and the miner when and

* Mr. Pendleton, of Boston, offers to execute lithographic prints of town maps at a very moderate price, after manuscript drafts are furnished for the purpose. We mention this fact as particularly important to Lyceums.

how to extend his researches, pointing him to a reward for his labours, and guarding him against abortive attempts.

Agriculture, internal improvements, manufactures, and the various useful arts, occupy, at present, so large a place in public atiention, as to render every method which can be adopted to advance them worthy of public and private patronage.

10. The introduction of geology into schools, would tend to promote moral improvement among the young. Perhaps there are not two more unfortunate circumstances attending our system of popular education, than that the exercises of children in the school room are irksome, and those for recreation are dissipating to the mind. If school houses could be rendered places of pleasant resort, and amusements sources of useful instruction, the great work of reform in cultivating intellectual and moral taste would be fairly begun. The more innocent and useful amusements, are scattered around the young, the less time and disposition will there be to pursue those which are pernicious or useless. No subject, perhaps, is better fitted to answer the double purpose of amusement and instruction, than geology. And few are better fitted to show the power and wisdom of Him, 'who weighed the mountains in scales, and the hills in a balance.'

11. It is easily acquired. The features of this science are not only striking and grand, but they are few and simple, and exactly fitted to entertain and expand the juvenile mind. By the aid of specimens, with appropriate descriptions, its general principles are more easily and readily understood, than those of any other science which is taught. Nothing is more easy than to introduce it into every district and private school in the country; and to acquaint every child with the names, ingredients and uses, of the rocks he daily observes in his walks, and with the prominent geological features of our country.

12. It is necessary. Without it, gazetteers and journals of travels cannot be understood. In some places, a knowledge of the great geological features of the earth, is as common and familiar, as of the continents and oceans: and consequently, without this knowleege, a person is liable to find himself ignorant of the most common and familiar topics of conversation, in the society he will frequently meet. To be destitute of a branch of science so important and accessible is to be unprovided with a great source of mental occupation and entertainment for early life, and in the case of teachers, the want of it is the want of a powerful and happy means of influencing the youthful mind.

Few teachers perhaps are at present acquainted to any extent with this important department of knowledge. But none need long remain so, who are in the neighbourhood of a Lyceum. The farther extension of this useful institution will, it is to be hoped, offer opportunities to every instructer of acquiring at least a good knowledge of local geology.

ART. VIII.—*Apparatus for the Instruction of Children.*

THE eye is a most powerful and efficient inlet of knowledge. On many subjects, a mere glance of that organ will do more than a course of reading and study for weeks or even months. To young minds possessed of but few ideas to use for acquiring others, visible illustrations are indispensable. Without them, their progress in learning, will be merely collecting words without ideas. Nor can it be doubted, that wherever the nature of the case admits of it, representations to the eye ought to precede a description from the book or the teacher. As the uniform and distinguished success of infant schools has demonstrated the truth of these remarks, they are not presented in the form of theories, but of facts; and of course do not require words to prove them.

Although the importance of apparatus for the instruction of children, must appear manifest from a moment's reflection, and has been fully demonstrated by experiment, the sentiment still prevails too extensively that study is necessary before it can be used to advantage.

An erroneous sentiment obtains, not only in relation to apparatus for the use of children, but respecting the subjects most easy and natural for them to comprehend, and most useful for them to learn. The most unfortunate impression exists to a great extent, that the learning of letters, spelling, reading, writing, &c., are the most important, if not the only important subjects to occupy the attention of young children; and that the sciences, or the laws and works of nature, are above their comprehension, and not fitted for their use.

The order in which those subjects should be taught to children, whether considered in relation to their easiness of comprehension or their practical utility, most certainly ought to be

reversed. Every child, in his earliest infancy, is a natural philosopher. He experiences the most intense delight, in his endless and endlessly varied experiments to ascertain the nature or properties of objects around him, and of the laws which govern them. The whole circle of the sciences is examined and relished, to some extent, by children ; and the examination is commenced at a very early period. The experiments tried by them, in chemistry, mechanics, hydrostatics, pneumatics, optics, botany, mineralogy, &c., are innumerable, and all calculated to give them the knowledge which they most need, and which they constantly use in their daily pursuits in life.

If one science is commenced by infants earlier than any other, and more than any other, lies at the foundation of an intellectual and practical education, that science is *geometry*. It is evident that one of the first impressions made upon the mind of an infant, when he opens his eyes upon the light of heaven, is the shape or figure of objects around him. He commences the study of figure or geometry by the eye, and after a few weeks, brings to its aid, the hand. It is by seeing and feeling the various objects around us, that we learn their shape and are enabled to compare one with another. By this examination and comparison we learn the nature and properties of all figures, both of surfaces and solids and the relations that exist between them. The properties and relations of figures are nothing more nor less than the science of geometry.

Although children commence almost with their existence, the study of geometry, chemistry, natural philosophy, and almost the whole circle of the natural sciences, and pursue them with the greatest ardour and delight, and greatly to their advantage in their future avocations, (whatever these may be,)—both the delight and the advantage of these studies might be greatly aided by facilities which parents and teachers can put into their hands. It adds much to the pleasure and the practical utility to be derived from the natural sciences, to have the elementary principles clearly and familiarly understood. To understand the properties and relations of different shaped surfaces and solids, diagrams and models of solids are exceedingly desirable if not indispensable. The nature of circles, squares, triangles, spheres, cubes, cylinders, pyramids, cones, &c., and their resemblances and differences, will be better understood by a mere glance of the eye on the things themselves, than could be done by descriptions, however accurate, and however long continued. If these views are correct, a set of geometrical diagrams and

solids must be a valuable part of the furniture of every nursery and school room.

A small globe, merely to show the shape, motions, and a few of the great divisions of the earth, a simple representation of the solar system, a few cheap and simple articles to illustrate some of the most interesting and important principles of chemistry and natural philosophy, specimens in geology, sufficient to explain the rocks children pass in going to and from school, slips of the principal American forest trees, representing the bark, wood, and leaf, with a description and explanation given of each in a small tract, would be valuable appendages to a school room.

That these subjects would be interesting to children, and wholly within their comprehension, is triumphantly proved in infant schools, as well as by the course voluntarily and ardently taken by almost every child in his little, but ceaseless and healthful enterprizes of sport and mischief, as soon as he gains the power of locomotion. The whole of this will be explained, when the fact, too seldom realized, is understood, that almost every principle of science when divested of verbiage and technicalities, and presented in its native character, is remarkable for its simplicity, and its fitness to interest as well as to enlarge the minds of children. Surely a child need not be very old, to learn that if an iron rod is put into the fire it will be made longer, or after seeing a few experiments, to understand the general proposition that heat enlarges bodies.

It does not require great maturity of intellect to learn the fact, that glass is more brittle than lead, that gold may be beaten into thinner leaves than iron, or that iron is stronger and more apt to rust than gold; yet these facts all belong to the science of chemistry, and are fitted to amuse and instruct children, and put them in possession of knowledge which they will have occasion to use in almost every pursuit in life.

If any person will inquire for a moment through what organ impressions are made upon the minds of children, most rapidly, distinctly, permanently, and agreeably, what kind of knowledge they are in infancy most eager to obtain, and what they have the most frequent and important occasions to use in the daily and ordinary pursuits of life, he must be ready to acknowledge that apparatus, and specimens to explain the laws and the works of creation, are an essential appendage to every school room and every nursery.

INTELLIGENCE.

Massachusetts Charitable Mechanic Association.

This institution is probably well known to many of our readers, as one distinguished for its beneficence, as well as its standing and respectability. In addition to its other objects, its influence has been recently extended to the diffusion of scientific knowledge among its members, by the establishment of lectures, resembling those usually given at the mechanics' institutes abroad, and in our own country. The peculiar facilities which this society can command for carrying such objects into effect, it is unnecessary to enumerate to those of our readers who are acquainted with its character. To others, the information may be sufficient that it embodies, perhaps, the largest number of well informed mechanics, that have yet been associated in this country, for the promotion of objects of benevolence or of science; and has, from its commencement, ranked among its members, individuals whose names are extensively known in connexion with the best interests of the community.

The measures adopted by this association, for the purpose of furnishing scientific instruction, have identified its objects with the great interests of education. In this view, it becomes a source of intelligence on the subject to which our journal is devoted; and a brief account of its origin and design would seem likely to form an article of instructive and interesting information to our readers.

The Association was instituted in the year 1795, for mutual aid in the advancement of the mechanic arts, by 'promoting mutual good offices and fellowship, assisting the necessitous, encouraging the ingenious, and rewarding fidelity.' The institution is styled the 'Massachusetts Charitable Mechanic Association.' It is restricted, in the admission of members, to persons who are mechanics and manufacturers, with the exception of individuals admitted as honorary members. 'The government of the association superintend its general interests, and, in particular, its prudential concerns: they are empowered to correspond, when it is deemed expedient, with similar associations in other places: they have power to grant such sums to indigent members, their widows or orphans, as they shall think proper,—not exceeding twenty dollars in any one instance.' A 'committee of relief' is chosen by nomination, annually, whose duty it is 'to seek out and relieve such indigent members of the association or their families, as may be proper objects of charity,'—for which purposes a liberal sum is annually entrusted to the committee of relief. 'Beneficence is a primary and conspicuous object of the association: its funds are considered as chiefly devoted to the relief of the distressed. On the death of a member, the committee of finance shall immediately order the sum of forty dollars to be presented to his widow, family, or legal representative; but when there is no widow, family, or legal representative, the money shall be appropriated to defray the funeral expenses.'

'As it is compatible with the act of incorporation and the good of society, the association may, from time to time, when the state of its

finances will warrant, grant such premiums for superior workmanship in the respective arts it embraces, as the government shall deem most expedient.'*

'The fee for ordinary membership is ten dollars, the quarter-yearly assessment on each member is fifty cents.'

Among the general regulations is the following, the influence of which is felt to be excellent on the character and habits of youth.

'To reward industry, sober habits, and fidelity, the association decrees, that when an apprentice, on arriving at twenty one years of age, shall produce a certificate from the person with whom he hath served his apprenticeship, that he has behaved with fidelity and attention, and has not violated any agreement made by him, it shall be the duty of the government to direct, that he be furnished with a certificate, sealed with the seal of the association, signed by the president and vice president, and attested by the secretary.'

From the date of its institution this association has continued a distinguished organ of beneficence; and through its influence on those for whose benefit it is designed, has contributed, in no slight degree, to the general good of the community. The impulse given, of late years, to the mental advancement of the industrious classes, by the establishment of practical lectures and other means of instruction, has been extensively felt in the United States, as well as in Europe. The objects of the Massachusetts Mechanic Association were very justly deemed by its members to be such as accorded with the general efforts of the day, for the wide diffusion of scientific knowledge. An act of the legislature, (February, 1826,) was accordingly obtained, by which the association is empowered to hold 'personal and real estate, to the amount of one hundred thousand dollars,'† and to 'establish schools and libraries for the use of apprentices and the improvement of the arts.'

In the present condition of the association there are three prominent objects of general interest. These are its *library*, the *evening school* for apprentices, and the *public lectures*.

The *library* owned by the association contains from twelve to fifteen hundred miscellaneous volumes. It owes its origin to a number of liberal individuals, who presented it to the institution 'for the use of mechanic apprentices in the city generally.' In 1826, a donation to the library by Sir Isaac Coffin, was received through the mayor, Mr. Quincy. It is a circumstance not unworthy of notice, that the library has been for some time entrusted to the keeping of the apprentices themselves, who manage it by a committee elected for the purpose, and responsible to a superintending committee of the association. The library is open to all apprentices in the city and vicinity, without charge, and without any other restriction than those usually found necessary for similar purposes among adults.

The *school for apprentices* is an important and comparatively a recent addition to the society's means of usefulness. In some instances, the opportunity thus afforded to the young is invaluable. The public schools of the city provide adequate elementary instruction for the children of its inhabitants. But not a few of the youth who are employed as ap-

* It is perhaps to be regretted that, of late years, this laudable object has failed to attract the attention of the association, in a definite way.

† The present amount of the funds, is upwards of $14,000.

prentices in the city, are natives of other places; and of these some have received but little advantages of tuition. To lads in this situation, the evening school opens every prospect which can be offered as an inducement to industry in the acquisition of intelligence as well as of manual skill. To this school every member of the association may introduce his apprentices, if over seventeen years of age. The branches taught are such as seem likely to be most useful to persons engaged in active business. The number of pupils is at present upwards of fifty; the attendance, however, is necessarily more liable to interruptions than is the case in regular day schools. It is interesting to contemplate these exertions for cultivating the minds and elevating the character of those, who, it is natural to expect, may, in due season, become themselves members of the Association, and dispensers of its benefits in their turn.

About the commencement of last year, arrangements were made for establishing a course of *lectures*, to be delivered weekly, at the expense of the association; each member to be entitled to two tickets of admission. The plan of the lectures for the present season was extended, so as to admit of a part of the lectures being delivered by members of the association. The introductory lectures of the course for this winter, were on subjects connected with chemistry, and were delivered by Dr. Gay.* The first lecture by a member of the association, was given by Mr. William Jackson, on the subject of rail roads, and subsequently repeated before the members of the legislature. It has since been published. In addition to these, two lectures have been delivered by Dr. Bradford on physiological subjects.

The lectures have, thus far, proved highly interesting and instructive; and should they be rendered accessible to apprentices of a proper age, (perhaps in the form of a reward for punctuality and diligence at the evening school,) the sphere of their usefulness would be beneficially extended.

A triennial festival is held by the Association in the month of October, at which a public address on topics connected with the objects of the institution is delivered by one of the members. These discourses have all been successively printed for the use of the Association; and most of them present very interesting views of the progress of the useful arts.

The officers of the Association are chosen annually in January. The following list was compiled from the last election.

President, Samuel T. Armstrong; *Vice President*, George W. Otis; *Treasurer*, John Cotton; *Secretary*, Joseph Lewis; *Trustees*, Seth Thaxter, Ezra Dyer, J. T. Buckingham, Abraham Call, Jacob Todd, Benjamin Loring, James Mc Allister, Edward D. Clark, John Khun, George W. Otis, Daniel Messinger, Isaac Harris, Simon Wilkinson; *Committee of Relief*, Frederick Lane, Charles Wells, James Brown, David Francis, John Wells.

We are happy to understand that since the arrangement for the establishment of lectures was carried into effect, there has been a large accession to the list of members. This circumstance is an additional proof of the great extent to which a desire for scientific information prevails in the community. It is a favourable indication, also, of the con-

* Of these, one is contained in our present No.—*Ed.*

tinued prosperity and usefulness of the Association. We cannot doubt, however, that there are still very many of the mechanics of Boston and its vicinity, who have not yet availed themselves of the privilege of joining this institution, as members, and affording their apprentices the advantages of the library and the school. If the imperfect sketch now given of the design and character of the Association, should attract the attention of any to its excellent objects, it will have accomplished a valuable purpose.

Those of our readers to whom this article may have been less interesting, will not be dissatisfied with the length to which it has been extended, when they advert to the fact, that hitherto there has been no full account of its subject, before the community.

Carbon.

[To render the Journal useful to Lyceums, it is intended that each number should contain one or more treatises or discourses, on subjects intelligible and interesting to all classes of readers, and at the same time adapted to the objects of the lectures and conversation, which form a part of the exercises usually adopted at the meetings of a Lyceum. In addition to the discourse of Mr. Johnson, the subject now introduced will, we hope, be found generally instructive, as well as directly applicable to practical purposes. The article which follows, formed the substance of one of the lectures delivered, this season, by Dr Gay, to the Massachusetts Mechanic Association. Our readers will of course receive it, not as a full, systematic treatise on its subject, but as a familiar discourse, presenting useful information in a popular form. With this view of its character the author has, at our request, obligingly yielded it for publication in our pages.]

Carbon is one of the simple or elementary substances. Where this substance is not combined with any other, it exists in a solid state. It is a principal ingredient in all vegetable matter; and it is familiar to us as coal or charcoal. If we set fire to a piece of wood, it burns for some time with a flame. After a time, however, the flame disappears, and there remains nothing but a black substance, which we call coal: this coal is carbon, almost in a state of purity. The explanation of this phenomenon is this: a piece of wood is composed of carbon, or charcoal, and several other ingredients; and when we set fire to it, the heat of the wood, while burning, converts these other solid substances of which the wood is composed, to a gaseous or aeriform state; these pass off in this form, in the same way as when we heat a quantity of water so as to make it boil, it will pass off in the form of steam. All the parts of the wood, then, that can be made to assume the gaseous or aeriform state, by means of heat alone, are driven off in this form; while the coal which cannot be made to assume the gaseous state by the heat alone, remains solid. I shall explain to you presently

the manner in which the coal itself may be made to assume the form of a gas.

The common charcoal that we use for fuel, is prepared by piling together a quantity of wood in the form of a pyramid, and covering it with turf, clay, or earth, leaving a few air holes; the wood is then set on fire; and as soon as the whole of it is kindled, the air holes are stopped up. In this process the covering of clay or turf prevents the combustion of the coal, while the other parts of the wood are burnt or driven off in a gaseous state.

Charcoal obtained in this manner is not perfectly pure carbon: it contains a very small quantity of earthly or alkaline substances, and an exceedingly small quantity of hydrogen. Almost the whole of the coal, therefore, is carbon.

Another form of carbon, in common use, is lamp black. The principal difference between this substance and charcoal is, that the lamp black is in the form of an impalpable powder, and some kinds of it contain a less proportion of impurities than charcoal: a lamp black prepared carefully from turpentine may be burnt without leaving any ashes, which form the principal part of the impurities of coal. There is one other substance which, from the most accurate experiments, is found to be pure carbon; this substance is the diamond; and I shall presently mention to you the experiment by which this fact is proved.

Charcoal is a very bad conductor of heat. One end of a piece of it, an inch long, may be held between the fingers, while the other end is burning. It may, therefore, be advantageously used for several purposes connected with household economy. A double box, for instance, may be constructed that would preserve ice for a long time in our common cellars, in the summer. This may be done by taking too boxes, one much larger than the other in every direction; the smaller one is to be filled with ice, and is to be placed inside of the larger one; the vacant space between the two boxes, is then to be filled with powdered charcoal. The charcoal is so bad a conductor of heat, that only small quantity of heat will pass through it to the ice in the smaller box.

Charcoal possesses the property of depriving bodies of their odour, taste, and colour. This property, in some cases, is a valuable one. The vinegar that is used in medical preparations, is purified by putting into it a quantity of newly burnt charcoal, and heating it. When water has become putrid by long standing in casks, it may be deprived of its putridity, by being filtered through charcoal powder. In long voyages, the water will often become putrid. In these cases, it is sometimes made good by putting a quantity of charcoal in the cask of water, and agitating it. The method, however, that is usually practised, is a better one; the inside of the cask is burnt to a coal, by which the putridity of the water is prevented. Even meat which has become somewhat putrid may be deprived, in a great measure of its bad odour and taste, by rubbing it with charcoal powder, and imbedding it in the powder.

Charcoal possesses the power of absorbing a certain quantity of the different kinds of gas: a piece of charcoal made from boxwood and newly burnt, will absorb and condense into its own substance, nearly twice its bulk of hydrogen gas, about nine times its bulk of oxygen gas, and about twenty times its bulk of gaseous ammonia. These gases may be driven off from the charcoal, by heating it. Charcoal,

when exposed to the air, will also absorb a considerable portion of the moisture that the air always contains. It appears that the purifying power of charcoal depends, in some measure, upon this property of absorbing the different gases, and possibly somewhat upon that of absorbing moisture; for it is found that a piece of charcoal that has been exposed to the atmosphere, does not possess this antiseptic property in nearly so great a degree as a piece newly burnt. The reason is, that the charcoal that has been exposed, has absorbed a certain quantity of the gases of which the air is composed, and hence loses in some measure, the power of absorbing more of the gases that may arise from the substance which is to be preserved.

Carbon has a strong attraction for oxygen, and it unites with it to form a gas: this gas has the properties of an acid and is called carbonic acid gas. To produce this combination of charcoal, or carbon and oxygen, it is only necessary to set it on fire. I explained to you, in a previous lecture, that the atmosphere is composed of oxygen and nitrogen gases: and when we set fire to a piece of coal, almost the whole of it gradually unites with the oxygen of the atmosphere; and while this union is going on, light and heat are given out by the coal, and probably by the oxygen also. In other words, the coal burns, so that we lose sight of the whole of it, with the exception of the small quantity of ashes that remains. The coal, therefore, by being burnt, is not destroyed, as we have not the power of destroying any kind of matter: it merely changes its form, and from a solid substance it becomes a gaseous or aeriform one. You have probably observed that when salt is put into a tumbler, and water poured upon it, the salt will gradually disappear. In this case, the salt is not lost, but is dissolved in the water. It is in a manner somewhat like this, that a piece of coal, after it is set on the fire, becomes dissolved in the oxygen gas of the atmosphere, and unites strongly with it. If a piece of coal be set on fire, and introduced into a jar of oxygen gas, it will burn with much greater brilliancy than in the atmosphere. The experiment by which it is proved that the diamond is nothing but pure carbon, is its combustion. When the diamond is heated to a red heat, and introduced into a jar of oxygen gas, it burns; that is, it unites with the oxygen; and by their union there is produced nothing but pure carbonic acid gas. The diamond, a piece of charcoal, and lamp black, are, then, the same substance, excepting that there is added to the two latter an exceedingly small quantity of other substances. The principal difference between them is, that the carbon in the two latter is in the form of a black opaque substance, while in the diamond it is crystallized so as to form the hardest substance known, and the most brilliant of the precious stones.

Carbonic acid is colourless like our atmosphere; and when contained in a bottle, we cannot see it any more than if the bottle were filled with common air. It is one of the weakest of the acids; but it is at the same time one of the most important. You were informed in a previous lecture, that one of the properties, by which many of the acids may be known, is that of converting the blue colour that may be obtained from some vegetables, to a red; this property is possessed by carbonic acid. We can obtain a blue liquid by boiling in water some leaves of the blue cabbage; if a small quantity of this blue liquid be poured into a glass vessel of this gas, and then agitated, the liquid

will become red. Although carbonic acid exists in a gaseous form, when uncombined, it may be made to assume a solid form by uniting it with some other substance. Chalk, marble, and limestone are all composed of carbonic acid united to lime. A hundred parts by weight of these substances, contain usually about forty four parts of carbonic acid; and the remainining fifty six parts are principally lime with small portions of other ingredients. It may be shown by an experiment that carbonic acid becomes solid, while uniting with lime. Let a small piece of quick lime be put into a glass vessel, containg water: the water will dissolve a small portion of the lime. We must now take a bladder containing carbonic acid gas, with a pipe stem inserted into its neck, and dip the end of the pipe stem into the solution of lime in the water. By squeezing the bladder, the gas will bubble from the end of the pipe stem, through the solution; and as it passes through it, it will combine with a portion of the lime, that was dissolved in the the water. The combination of lime and carbonic acid thus formed, is almost insoluble in the water; and it therefore falls to the bottom of the vessel. As it is in the form of very light powder, however, it will remain suspended for some time in the water, giving it a cloudy appearance.

There are other acids that have a stronger attraction for lime than carbonic acid has; the attraction between lime and sulphurous acid is stronger than that between carbonic acid and lime. If, therefore, we pour upon a piece of chalk some sulphuric acid, it will unite with the lime which is one ingredient of the chalk; and the carbonic acid will be set free from its combination with the lime; and being left alone, it assumes the state of a gas, and passes off in that state. It is well to put a little water on the chalk, before pouring on the acid; and then the gas may be perceived bubbling up through the water.

The following is the best method of procuring carbonic acid gas for chemical experiments. A piece of chalk or marble, half the size of a small apple, is to be broken into small pieces, and put into a retort; and half a wine glass of sulphuric acid, (oil of vitriol,) diluted with its bulk of water, is to be poured upon it. The carbonic acid gas will be copiously disengaged, and may be collected in receivers over water. The chemical name for marble, chalk, and limestone, is carbonate of lime.

Carbonic acid is formed in caverns, mines, and in deep wells: it is called by the miners, choke-damp: the common name for this gas is fixed air.

If a candle or any other common combustible substance be lighted, and introduced into a jar of carbonic acid gas, it will be extinguished.

Carbonic acid gas is much heavier than common air. If, therefore, a jar of it be held with its mouth downward for a few seconds, the gas will all fall out of the jar, because it is heavier than the common air; while if the jar be held with its mouth upward, the gas will remain in it for some time. It will, however, gradually mix with the common air, and at last all escape. This gas, from its weight, may be poured from one vessel into another, if a piece of lighted candle be placed at the bottom of a jar or tumbler, and some of the gas be poured from another jar the flame of the candle will be extinguished. When this gas is found in vats or deep wells, there is usually the greatest quantity of it near the bottom of the vat or well, and persons are sometimes in

danger of losing their lives by descending into them. As a candle will not burn where this gas has taken the place of the common air, and we can test its presence by lowering a candle into the well, if there be so much of the gas present, that the candle is extinguished, it would not be safe for any one to venture into the well or vat.

It is well known that persons have frequently lost their lives by remaining in a room where charcoal was burning. The reason of this is, that almost the whole of the oxygen of the atmosphere unites with the charcoal or carbon, and forms by this union, carbonic acid gas. You were informed in a previous lecture that the only gas upon which we could live for any length of time was oxygen gas, diluted as it is in our atmosphere, with a large bulk of nitrogen gas. There is to be sure, oxygen gas in the carbonic acid gas; but the oxygen gas in this state is strongly united with a portion of carbon; and in this state, it will not yield any more support to our breathing, than water would, if we were immersed in it. I have found that in some places, there is an opinion quite prevalent, that there is not any danger in remaining in a room where there is a pan of coals burning that have been taken from a common wood fire. This is a mistake: the coals from a common wood fire are exactly the same substance as the charcoal; and equal quantities by weight of these coals and of charcoal, will produce exactly equal quantities of carbonic acid gas. It is also by some persons supposed, that after charcoal has been burning for some time in a fire-place, there is a deleterious quality that gets burnt out of it, and that then it may be burned in a close room without danger. It is scarcely necessary for me to say that this is also an error.

The Lehigh and Schuylkill coals are composed of carbon united to a portion of some earthy substances; and in the burning of these coals, that is in the uniting of the carbon which they contain, with the oxygen of the atmosphere, there is carbonic acid produced, and of course there would be danger in burning these in a close room, as well as in burning charcoal. This would be the case also, in burning cannel and other bituminous coals; as their principal ingredient is carbon.

Carbonic acid gas, unlike the gases of our atmosphere, has a pungent and agreeable taste. If a quantity of this gas be condensed upon the surface of some water, the water will absorb it, and will acquire a pungent taste, which is derived wholly from the carbonic acid. The pungency of soda water is derived from this acid. To prepare this beverage, a very small quantity of carbonate of soda is put into water contained in a strong cask, and there is then crowded into the cask a large quantity of carbonic acid gas, which becomes absorbed by the water, and which then constitutes our common soda water. The object in dissolving in the water the small quantity of soda, is, to induce the water to absorb much more of the carbonic acid, than it otherwise would. As soon as any of this soda water is drawn off from the cask, there escapes from it a considerable quantity of air; this air or gas is carbonic acid; and it is evident that the pungency of the soda water is derived from the acid, because if the liquid be exposed to the air for some time, almost all the carbonic acid will escape from the water, which will lose its sharp taste. Beer, cider, and Champagne wine, that have been kept in bottles, contain a quantity of this acid, which escapes when the liquid is poured into a tumbler. The pungent taste of these liquids also depends upon this acid; as agitating them favours the

escape of the carbonic acid, they should be poured carefully from the bottle, without raising its neck from the tumbler.

Carbon has also a strong attraction for hydrogen, and it unites with it in two different proportions to form two gases.

The compound of carbon and hydrogen in which there is the smallest quantity of carbon, is called subcarburetted hydrogen. This gas is combustible, and it burns with a yellow flame, like that of a candle; it is destitute of colour, taste, and odour. This gas may be procured from the muddy bottoms of ditches and pools; to collect this gas we must hold a wide mouthed vessel with its mouth downward, in the ditch water, being careful that the vessel is filled with the water, before it is inverted. If the bottom of the ditch below the vessel be stirred with a stick, a quantity of air bubbles will arise into the vessel and displace the water. The air thus collected will be found to be carburetted hydrogen, mixed with a portion of some other kinds of gas; and if a lighted taper be applied to it, it will take fire. If from six to twelve parts of common air be mixed with one of this gas, and the mixture be set on fire, it will explode. Subcarburetted hydrogen is frequently generated in coal mines, and becoming mixed with the common air of the mine, explosive mixtures are formed. In the extensive coal mines in England, very large quantities of these explosive mixtures are frequently produced. A few years ago, these mixtures would take fire by the lamps used by the miners, producing the most tremendous explosions, and destroying the lives of many of the workmen. There was an explosion in one of the Newcastle collieries, by which one hundred and one persons perished in an instant. There has been discovered, however, an expedient that prevents these dreadful calamities. The remedy consists in nothing more than a cylinder of wire gauze, fastened upon the upper part of the lamp, which the workmen are obliged to use. This round cage or cylinder of wire gauze, is about one inch and a half in diameter, and six in length, and is fastened by means of a screw to the upper part of the lamp, so as to surround the flame; and all the air which feeds the flame of the lamp must pass through the apertures. The lamp thus guarded, may be used with perfect safety, in the most dangerous explosive mixtures, where the naked flame of a lamp would produce an instant explosion. The explosive mixture passes through the apertures to the inside of the cage; it burns in the cage; and the flame will sometimes come in contact with the inside of the gauze; yet there is not any danger of its passing through the apertures, so as to set fire to the gas on the outside, and produce an explosion. This lamp was the discovery of Sir Humphrey Davy; and it was the result of a long investigation of the laws and nature of flame.

The other gas resulting from the combination of carbon and hydrogen, contains twice as much carbon as the one first mentioned, and is called carburetted hydrogen. This gas is colourless like our atmosphere, and it burns with a brilliant white flame. The gas that has been so much used for several years past, for lighting large towns and cities, is a mixture of the two gases just described; they are procured from coal or oil. To prepare these gases, an iron retort is heated to redness, and then the coal or oil is put into it. If oil be used, it is suffered to run into the red hot retort only in very small streams. The gas from oil contains a larger proportion of the carburetted hydrogen, than the coal gas; and as carburetted hydrogen burns with a much

more brilliant flame, than the subcarburetted hydrogen, the oil gas will burn with a brighter flame, than the same quantity of coal gas. The flames from burning wood, oil, or coal, are all of them the flames of one of these gases, or more probably in most, the flame of the two gases, the carburetted and subcarburetted mixed in different proportions.

Account of a Visit to an Elementary School.

[Theory is most clearly seen, and is best understood, when embodied in practice. It thus becomes also most instructive and useful. Occasional articles, therefore, of the kind now presented, will, it is thought, prove serviceable to those who are engaged in the office of instruction.]

When we entered the school room, the children were eating their luncheon, and the teacher was standing in the midst.

'Have you any apples to divide?' he was asking; upon which three or four little hands were extended with an apple in each. He took them, and while he was cutting them, asked if there was any other word which they could think of besides 'dividing' that meant the same thing. Some said 'separating,' some 'distributing,' and some 'giving away.'* After he had dispensed all the apples but one, he asked them how many were willing that he should have all that one himself.

Every voice shouted '*I*,' simultaneously. Then he went up to one of the children, and asked him whether he wanted all the apple he held in his hand, or had rather it should be divided among the rest. 'I want it all,'—replied the little boy. 'Why?' 'Because I do. 'But this is no reason at all.' 'Are you generous, when you want it all?' 'No—stingy! selfish!' exclaimed several. 'Well,' said the little boy, seeing the tide against him, 'give me half, and divide the other half among the rest.' 'Oh, but why should you have so much more than the rest?' asked the teacher. 'Because'—'Because, he is selfish,' said one of the rest.

The little claimant at last consented that all, and he among the rest, should have an equal share. After they had finished eating, the teacher told them he would read them a story, if they would like to hear one. They all held up their hands in token of assent, and entreated him to read about Peter Parley. So he took up the book, and began, first telling them what the name, Parley, meant, and asking the meaning of the difficult words as he went on. He asked them, in one instance, what 'miserable' meant? One said, 'not comfortable,' another 'poor,' and another pointed to the fire, (which was quite out,) and said, 'That is a *miserable* fire.' The teacher asked what 'violently' meant? 'Hard,' 'quick,' 'strong,' were some of the answers. But one of the children got down off his seat, and stamping with his foot, shouted in a loud voice, '*That* is *violently!*' After a while, the teacher shut up the book, and they all exclaimed. 'Oh! *do* finish the story.' 'If you don't, you are a naughty man,' said one. 'Am I?' said the teacher, looking

*He made them spell these words.

at him with a smile. 'Oh! no—But do read some more.' By this time they had all got into confusion; and the teacher put the book upon his knee, and said, 'Why don't I go on?' 'Because we are all making such a noise,' they replied. He did not bid them be still, but waited patiently until they had brought themselves to order, and then read on. When he had finished, he told them he was very glad they had *governed themselves.* When he sent them to their seats, he bid each one remember not to talk; then he gave them their slates, and wrote on the black board: 'Day' 'this' 'is' 'cloudy' 'a'—and told them he was going to make a sentence out of these words. One or two of them read it off directly; he told the rest; and they all wrote it upon their slates.

Then, for variety of exercise, he drew a double circle with chalk, upon the floor, and some of the children began to hop round it, while the teacher kept time with a little bell. After this he went behind his table to hear them read, and they all stood round him. He found their places for them all, excepting one, who snatched the book out of his hand, and exclaimed that he could find the place himself. The teacher immediately gave it up. But after looking in vain, the child pushed the book towards the teacher, who returned it to him, reminding him that he had said he *knew* he could find it. The little fellow looked again, and again offered the book to the teacher. 'No,' said the teacher; 'you said you could find it yourself.' At last the child who stood next him, showed him the place; and, with the heavy cloud lifted from his face, he looked up, and exclaimed, 'I've found it, Sir.' 'I told him,' said the other. 'You should not have told him,' was all the teacher said, and the reading proceeded. I was struck very much with the teacher's judgment, in letting a fault punish itself so completely as it would have done, had not the help of the other child interfered.

When he sent them back to their seats, he supplied them all with picture books, telling them that if they asked for any more, what he had given them should be taken away. And I was struck too with the order and silence they kept, without any rule or command. He asked them 'why he wished them all to be still?' None replied; and so he answered himself, 'Because, if you all made a noise, we could not do anything.' 'Oh! no indeed!' they all responded. He asked them which was best, to govern themselves, or to be governed. They all said, 'To govern ourselves.' While some were reading to him, he bid the others paraphrase a sentence in their primers. When he called them up, one said he had not paraphrased, because he did not hear him say that he must. The teacher asked the rest if they heard, and they said 'Yes.' He then said to the boy, 'Did not you *really* hear me say you must write this?' 'No, Sir.' 'Tell me exactly—for there is One who knows whether you heard.' The boy still persisted that he did not. The teacher then turned to the rest, and said that if this boy did not say what was true once, they would never be able to believe him afterwards—'What if I should tell you to-day, to be sure and come here tomorrow at nine o'clock, and that I should certainly be here; and then you should come and find the door locked, and me not here, and so on a great many times? What should you begin to think I was?' 'A very wicked man,' said one. 'Certainly, so I should be; and you would never know what to do; and if everybody told falsehoods what a world it would be: we should not be able to do anything.' He said no more, but I suspect the lesson was understood by the offender.

After he had looked at the paraphrases of the others, he described words, and asked them to tell what they were; such as this: 'What does that man do who goes about in the night, and looks all around to see whether everything is right—walks and walks about, looking this side and that?' They could not tell. 'What does the dog do, which stays by the house to prevent any thief from coming?' 'He guards!' 'Yes; and there is another word.' After a while, one said, 'He watches.' 'That is it.' Then he described a thief; and some said 'stealer;' but at last they exclaimed 'thief.' He then sent them each after a certain number of blocks to count, and among them all they brought twenty. He made them tell how many ones, twos, fours, fives, and tens, there were in twenty; and after they seemed to understand it thoroughly, they went to their seats, and we came away.

[Our readers have probably anticipated us, in regard to the object in view in the insertion of the preceding article. Elementary education needs, and is receiving, great improvement in an intellectual point of view. But little, comparatively, has been done for its moral renovation. Even infant schools are too generally taught on arbitrary and mechanical methods, which leave the mind little voluntary influence over itself, and but a small share in its own advancement. The understanding and the heart are made to receive impressions in a passive way, when they ought to be called into action. The little pupils are 'tutored' into obedience and intelligence, till they become little else than animated machines.

The methods of instruction adopted in the school described above, have, it has probably been observed, a very different tendency: they cherish freedom and vigour of mind, with natural independence and individuality of character. The principles disclosed in this article, will, we hope, attract the particular attention of parents and teachers.]

Harvard University.—The Hon. JOSIAH QUINCY has been appointed President of this institution. Our readers, we doubt not, will be interested by the following statements relating to the college, which are abstracted, by the Salem Gazette, from the Annual Report of the University.

It appears by the Annual Report of Harvard University, which has just been printed, agreeably to a recent vote of the corporation, that the whole amount of the real and personal property of the University is $381,682 57; the income arising from which, from August 1827 to August 1823, is $21,605 21. The whole income of the University, arising from Term Bills, and including the above, is $43,251 69. The expenses of the college, during the same time, were $38,104 27.

The report presents a full and detailed statement of the number of Exercises and Lectures, each class attends, during the academic year, together with a particular account of all property belonging to the University, and the manner in which it is invested, the salary each officer receives, and every particular expenditure of the University.

The following is an official estimate of the expenses of a Student at

Harvard College for one year, as reduced by the Corporation after August 31, 1828.

For Instruction, Use of Library Lecture Rooms, Steward's Department, Rent, and Care of Rooms, - - -	90.00
Class Books delivered from the Library, - - -	20.00
Wood delivered from the Yard, allowing three cords to a Student, or six to a Room, - - - - -	22.50
Board for forty two weeks, at $1.75, - - - - -	73.50
	$206.00

State of the College. The whole number of students at present connected with the University is 401, viz:—Seniors, 60; Juniors, 47; Sophomores, 69; Freshmen, 74; University Students, 5; Theological, 33; Medical, 84; Law, 6; Candidates for the Ministry, 17; Resident Graduates, 6.

The regulations now are such that any person of good moral character, can enjoy all the advantages offered by the institution, without becoming a candidate for a Degree. Such persons have the privilege of residing at the University for any length of time, of pursuing any one or more branches of study, and of attending such lectures as they may wish, without being required to pursue all the college studies. These are termed University Students.—*Christian Reg.*

American Lyceum.—This institution is, according to accounts recently received from various parts of Connecticut, New Hampshire, Vermont, and Maine, becoming extensively established in New-England. In the state of Massachusetts, its branches are numerous; and these are, in several instances, organized into general associations for towns and counties. On the 6th of February, a meeting of persons favourably disposed towards the Lyceum, was held in the Chamber of the House of Representatives. Several resolutions, calculated to promote the object of the meeting, were unanimously passed; and a committee was appointed, for the purpose of collecting information, and reporting on an early day of the next winter session of the legislature.

A plan for a Lyceum in Boston has also been matured; and measures are in progress for its establishment.

Primary Schools of Boston.—The last semiannual report of the standing committee, presents the following intelligence: Number of schools, 57,—scholars; 3436; viz. 1684 girls, 1752 boys. Average number of scholars in each school, 55. The monitorial method of teaching proves successful, and is gradually extending; larger and more wholesome rooms, seem to be still very generally needed; select juvenile libraries are attached to most of the schools; the discipline generally prevailing is mild yet effective.

Institution for the Blind.—At a meeting recently held in Boston, a committee was appointed to report measures for carrying this object into effect. The business is making speedy progress. An act of incorporation has been solicited, and, we believe, obtained, by a number of individuals associated for the promotion of this philanthropic object.

Deaf and Dumb.—A very interesting opportunity of becoming informed of the methods adopted in teaching pupils of this class, has been offered, this winter, to the members of the legislature of Massachusetts, and to the citizens of Boston, by the visit of Mr. Gallaudet. He was accompanied by two of the pupils of the Asylum at Hartford, who performed, under his superintendence and at his dictation, a number of exercises, in illustration of the system adopted at the Asylum—a system for the introduction of which, our country stands indebted chiefly to the talent and enterprise of Mr. Gallaudet. The extent and the minute exactness of the instruction imparted to these pupils, were surprising; and the methods of tuition, as exemplified in their performances, appeared to be of a character so strictly intellectual, so simple, and so practical, as to suggest many useful thoughts for the improvement of all elementary instruction; while the watchful attention, the docility, and prompt attention of the pupils, afforded an eloquent though silent lesson of improvement to the juvenile part of the spectators.

Education in New-York.—Extracts from Gov. Van Buren's Message to the Legislature. The Literature Fund is $331,609 82; and its revenue for the present year, is estimated at $21, 074 48. The management of this fund, and the distribution of its income, are entrusted to the Regents of the University, under such restriction, however, as to make the incorporated academies, and seminaries other than colleges, subject to the visitation of the Regents, the exclusive objects of this munificent benefaction.

The productive capital of the Common School Fund, is about $1,700,000. Although the revenue has not, in any past year, been quite sufficient to pay the appropriation of $100,000, directed by law to be annually distributed to the common schools, it is believed that it will exceed that sum the present year.

The liberal endowments from time to time granted to our scientific and literary institutions, have added much to the character of the state, and reflected high honour on the enlightened councils under whose auspices they were made. Although sometimes improvident, and occasionally unsuccessful, their general results have been highly auspicious to the great cause they were meant to subserve, and afford the strongest encouragement to a faithful perseverance in the same wise and liberal policy.

Extracts from the Annual Report of Mr. A. C. Flagg, Secretary of State and Superintendent of Common Schools.—Returns have been received of the common schools from the commissioners of every town and city in the state. In former years it was not unusual to have fifteen or twenty towns delinquent. It is gratifying to notice this evidence of increased attention and punctuality on the part of those who are charged with the execution of the statute.

The forms for school returns which were published with the revised statutes, provide for reporting the amount paid in the several districts for teachers' wages, over and above the school monies apportioned to the districts. The returns which have been received are from various towns in 15 counties; and the sum thus ascertained, compared with the amount of public money paid to the same districts, affords a very fair test for ascertaining the proportion paid by the inhabitants of the

districts for tuition. Taking these returns as a test, it appears that $336,643 have been paid for teachers' wages, besides the $232,343 of public money apportioned to the districts; making a total amount paid the last year for tuition, in the common school districts of the state, of $568,986.

During the year 1828, $202,343 21 have been paid to the several school districts which have made reports: of this sum $100,000 were paid from the state treasury, $119,209 30 were raised by a tax upon the several towns in the state, and $13,133 91 were derived from a local fund possessed by certain towns. The towns have raised by a voluntary tax $19,209 30 cents, more than were required to entitle them to the public monies.

The amount distributed among the several district schools, exceeds that of the preceding year, by $9,347 44.

From the abstracts of the reports from the several towns and counties, it will be seen that there are in the towns which have made returns, 8609 school districts, and consequently the like number of schools organized; and that returns have been received from 8164 of those districts.

It appears also that 311 new school districts have been formed during the year 1828, and that the number of districts which have made returns, exceeds that of the preceeding year by 358.

That there are in the districts from which reports have been received, 449,113 children between the ages of 5 and 15; and that in the common schools of the same districts 468,205 scholars have been taught during the year 1828—the general average of instruction having been about eight months. The number of children taught in the common schools of the state has increased 26,349 since the last annual report.

University of Virginia.—The following changes have taken place in this institution, since the date of our last intelligence Mr. Long having been appointed professor of Greek literature, in the London university, Dr. Gesner Harrison has been selected to fill the vacated chair. Professor Bonnycastle has been transferred from the department of natural philosophy, to that of mathematics; and Dr. R. N. Patterson of the University of Pennsylvania, has been appointed to the former, together with the charge of the observatory, for which a separate salary is assigned.

The number of students matriculated during the session is one hundred and thirty one.

New-Hampshire Literary Fund.—It will be seen, (says the Concord Register) by a reference to our legislative journal, that a distribution of the Literary Fund, which has been accumulating for 7 or 8 years, and now amounts to between fifty and sixty thousand dollars, has been determined on, by a large majority of the representatives of the people. This fund, by provision of law, (if the Senate and Executive concur, as they doubtless will, in the measure) is to be divided among the several towns in the State, according to the apportionment of the public taxes existing at the time of the distribution. The money is to be applied by the respective towns to the support of common schools, or other

purposes of education,* without releasing them from the obligation to to raise the sums already provided for under existing laws. A penalty, of double the amount misapplied, is imposed upon any town that shall pervert any portion of the fund to a purpose not contemplated by the act. Provision is also made for the future distribution, annually in June, of all sums hereafter received by the Treasurer, under the act of June 29, 1821, creating the fund.

Literary Fund of Virginia.—The literary fund of Virginia actually available, amounts to $1,200,856.

Reading Room for Ladies.—Preparations are making for opening an establishment of this kind in the city of Boston. Much benefit, we think, may result from this aid to mental cultivation and enjoyment. Many of the most agreeable and instructive productions of cotemporary literature, are presented through the medium of periodical publications, or in some of the scarcely less ephemeral forms of narrative writing. Few, perhaps, even of the studious among the male sex, think of introducing such works, to any considerable extent, into their private libaries. For reading of this description, it is customary for men to resort to a reading room. A similar opportunity for those of the female sex to whom their circumstances and taste render it desirable, would seem equally, if not more advantageous.

Extensive reading, however, is not the only benefit which may result from female associations for intellectual purposes; as the progress of the undertaking now mentioned will probably show. The ladies who have taken part in this useful enterprise will, we hope, prosecute it to whatever extent it may seem to them likely to prove beneficial. They will not, we trust, be deterred from their attempt by the influence of the ridicule which some *manly* censors have endeavoured to throw on it. The female sex are themselves the most competent judges of what are the intellectual aids which their condition requires.

* Taking for a test, the experience of the state of Connecticut, in regard to a school fund, the abovementioned distribution will not probably eventuate in real and permanent benefit; unless it be used in a way different from what is generally anticipated. Would not the money distributed be advantageously employed, if appropriated for the purpose of continuing the public schools for a greater number of months every year, than has been customary, or of securing able instructers, by the offer of an adequate salary?

A part of the money might be very usefully expended in the purchase of apparatus of a cheap and simple kind, for the object of elementary instruction in the practical sciences. Both pupils and teachers would be benefitted by such assistance.

NOTICES.

Works in the Department of Education.

History of the States of Antiquity. From the German of A. H. L. Heeren, Professor of History in Gottingen, and Member of the Royal French Academy of Inscriptions. Northampton, Mass. S. Butler, and G. and C. Carvill, New-York. 1828. 8vo. pp. 487.

History of the Political System of Europe and its colonies, from the Discovery of America, to the Independence of the American continent, from the German of A. H. L. Heeren, Professor of History, &c. Northampton, Mass. S. Butler, &c. 1829. 8vo. 2 vols.

As soon as the animal wants are provided for, we naturally seek for knowledge and power. Of all knowledge, the most interesting is that which relates to the nature and destination of man. Self interest sends us on this inquiry in search of profitable lessons for the regulation of our own lives, aided by the sympathetic principle which prompts to a participation in the weal or woe of our fellows. We run to the play and the novel, the court of justice and the crowded assembly, to seek for new views of life, we unravel the web of metaphysics to ascertain the secret springs of human action, we open the volume of history to learn the doings and the sufferings, the character and destiny of the collective race of man. Individuals, nations, ages, all are the subjects of our study. History, therefore, is among the subjects which first occupy the human mind, and dates its origin before the era of civilization. It appears successively in the traditions of the savage; in the poetical colourings of the early epic, in the simple prolixity of the chronicle, in the philosophical narrative which analyzes the causes and consequences of events, and finally in compendiums like those before us, which are intended to introduce the student to the stores of knowledge accumulated through ages. The qualities required in the last class of works are order and precision, accurate statements and judicious reflections. These merits seem to us, to belong to the works of Mr. Heeren, who is considered by his countrymen, one of the best of their living historians. The manual of ancient history begins with the earliest times, and comes down to the destruction of the Roman empire in the west. It contains five divisions. 1. The Asiatic and African states before Cyrus. 2. The Persian empire. 3. The states of Greece. 4. The Macedonian monarchy. 5. The Roman state. The general divisions are of course subdivided. The geography of the several countries included under one division, is given in the first instance, succeeded by a few general remarks on their history, accompanied with references to the best works ancient and modern, which furnish par-

ticular information respecting their remarks on the merits of each. Then follows a condensed chronological sketch of the history of the several states, interspersed with short but just reflections on the character and condition of each, and the causes of their good or bad fortune. The book contains much information in a limited compass, and may be used with advantage by the teacher, as a text-book, by the young student to direct his reading and condense his acquisitions, and by readers of all descriptions as a book of reference.

The preface to the French translation of the Manual, says of it, that 'it is to be considered as a synopsis, in which the most important and precise ideas respecting the constitutions, and the revolutions of the several states are given with order and clearness, and many portions of ancient history, which appear confused even in long and elaborate works, are treated with distinguished talent and erudition. We would cite as instances, the accounts of the Greek colonies, of the successors of Alexander, of the Parthian kings, &c.' Heeren says in his preface translated in the same work, 'The objects which have principally attracted my attention are, the formation of states, the changes which have taken place in their constitutions of government, the direction which they have given to the commerce of the world, the degree in which each has participated in it, and, as immediately connected with this part of the subject, the aggrandizement of the various nations by the means of their colonies. I have felt myself bound not merely to give a simple narrative of events, but to trace their course and connexion, and explain the causes of national development.'

The objects of the author seem to us accomplished, and the remarks of the French translator correct. This Manual, in our opinion, surpasses its predecessors in order and accuracy, in sound views and copious references to the best sources of information. The compendium of modern history, beginning with the end of the 15th century, and coming down to the year 1821, has similar merits. We think the translations will prove useful additions to our books of instruction. Our system of study has been hitherto too desultory and superficial. As population becomes condensed, life systematized, labour divided, and competition increased among us, the want of a more thorough education is felt. The best European text-books should be introduced into our schools and colleges; and we are under obligations to Mr. Bancroft for giving us the Manuals of Heeren in an English dress. Considering the translations as elementary books, intended to be used in our colleges, we think they would have been better, if German idioms had been more studiously avoided. The intimate acquaintance of the learned translator with the language and literature of Germany, has made him partial to some phrases and constructions which sound harsh to an English ear. In the next edition, (for we trust there will be many,) these small blemishes, we hope, will be removed. The Manuals will then be entitled to a very respectable place among the higher class of text-books.

Geometry for Schools. By Josiah Holbrook. Boston. 1829.

We are grateful for the attempt of Mr. Holbrook to make Geometry

a study for children, as we think it may give an impulse to some more successful undertaking for the same purpose.* The fault of this book is, that the questions do not serve to lead the mind of the pupil to make the discoveries himself; they merely serve to remind him of the several sentences which he must previously learn by heart; thus the book is, after all, an exercise of memory, and not of that power of the mind which apprehends proportion.

To make ourselves fully understood, we will claim the attention of our readers to some remarks on the method of teaching the exact sciences. That this subject is yet in obscurity, is evident from the little success attendant on instruction in this department. Few children who go to school with a prepossession against arithmetic, become tolerable arithmeticians. And how small is the proportion of mathematicians to linguists in every university! A friend has assured us, that in the University of Gottingen, when it has taught three thousand pupils, and every other lecturer had a thousand hearers; the lecturer on mathematics commenced his course with sixty, and ended it with three; and the lecturer one of the first mathematicians of Europe.

But when we reflect that no human mind can at the same time be sound and *not* endowed with the power of apprehending those axioms which include within them the mathematics, and that the practical applications of this science are most important in common life; we must feel both that the methods of teaching are essentially defective, and that to remedy the defect is most desirable.

The evil lies at the very beginning. The defective method bears upon the first stages of the instruction in arithmetic given to children who are naturally slow in calculation, or, to speak more accurately, whose power of calculation is comparatively late in its development. Children whose mathematical faculty developes before the age when school discipline commences, get the start of their instructers; they have methods of their own, and almost unconsciously throw all questions into a form corresponding to their own methods. And besides, the practical questions which circumstances give them, are level to their capacity, constant success gives them a calm sense of power, before which all difficulties vanish. It has been remarked, that the mind often goes to a certain point in mathematics, and then stops. We apprehend that this, however, is no proof of a limited capacity, and that were no violence done the mind, no hurrying forward of the faculties to grasp what is at present beyond them,—but patient courage possess the mind, it would go on, after an interval, as before.

But we will dismiss the consideration of the case of those, who have mathematical genius. They are not the only ones who must study arithmetic. No individual of either sex, can be placed in any situation in life, in which a knowledge of arithmetic is useless, and to which those powers of mind are not *indispensable*, to whose evolvement the exact sciences mainly contribute.

The danger of this false exercise of mind is especially to be guarded against. Children, slow in calculation, or even indolent, will always

* We are happy to learn that a second edition of this little work will soon be wanted. The suggestions offered above, will, we doubt not, receive attention from the author.

be in danger of endeavouring to supply the deficiencies of calculation by memory. And if they go to school, they have an excellent opportunity to do so, easily acquiring it by rote, in hearing the recitations of their companions. Even the plan of Colburn does not entirely neutralize this danger. It *tends* however to do so, and especially if the lessons are recited faithfully. But it often happens that the pupil may perfectly comprehend one section of the book, while the next is beyond him for the present; and unless there is care taken, in a few drillings the next will be acquired by rote.

When the mind staggers at any particular class of operations, the teacher should in the first place make himself quite sure that all the preceding processes are perfectly familiar, not only in the practical applications, but in the *rationale*. This may be aided by a parallel knowledge of geometry; and if, after this, the mind does not spontaneously start forward, nothing can be done but to rest a little; and if there is no despair, which is the common source of mental helplessness, this waiting will not be in vain. New power will come.

It is, indeed, difficult in many instances, to discriminate between want of comprehension and indolence, which produces precisely the same effects. Against the latter there is no guarding, except by moral means, but these should never be neglected, if the teacher would be faithful. There can be no uniform progress in these sciences, when the mind is originally slow or disinclined to them, unless there is strict conscientiousness. The pupil must be made aware that the power by which he apprehends mathematical truths is the gift of heaven, something which the will may take advantage of, but which it cannot create;—that faithfulness in the exercise of this power, and exercise of it on its appropriate subjects is necessary, lest it be altogether lost; that the result must always be reasoned out, and not merely remembered. These views should often be recalled to the pupils' mind by the teacher at the moment of recitation, and their honour and integrity brought so into exercise, that he may be able to say in any particular instance, 'Have you calculated, or did you remember the answer?' In doubtful cases, and often, at any rate, he should require the reasoning to be audibly detailed.

A child naturally inclined to arithmetic, and of quick talent in this department, will not need so much care, it is true. It is the instinct of mind, when it is powerful, to be true to itself; and this holds good of any particular talent which is peculiarly powerful.

But though this care is especially necessary for a child, who from original want of talent for arithmetic, is tempted to exercise his mind falsely, it can do no harm to any child. There is an important moral good to be derived from giving children a sense of religious responsibility in the exercise of their minds. Besides, it is giving the best ground work for future progress and discovery, in the sublime regions of mental philosophy, to turn the attention of children, early, to the discrimination of their various faculties, appropriating each to its proper department of inquiry and exercise. 'There are other studies to strengthen your memory: arithmetic is intended to improve your judgment,'—is a truth, which any child who is old enough to study arithmetic can understand.

There is great danger in stimulating the pupil except by moral motives. All others will produce excitement injurious to the mind.

But even moral motives should not be urged violently. There is nothing gained by violence, in the mind, especially in the exercise of those powers which are denominated intuitive.

Journal D' Education, publié sous les auspices de la Société formée a Paris pour l' amelioration de l'Enseignment Elémentaire. XIII. Année.—Mai. 1828. A Paris, chez Louis Colas.

This publication was introduced to the notice of our readers, in a former number. It was mentioned as the organ of the Society for Elementary Instruction, whose chief object is the establishment of monitorial schools throughout France.

The number before us contains the transactions of the annual meeting of the above society, held on the 20th April last,—the introductory speech of the honorary president, the Duke de Doudeauville, and the 'thirteenth annual report,' by the secretary general, the Baron de Gerando. From this report it appears, that, in the city of Paris, there are, besides the schools for adults, twenty five for pupils of both sexes, taught on the plan of mutual instruction, and containing 2268 boys, and 1462 girls. Flourishing schools are also said to exist in upwards of seventy towns and other places, which are named. The evening schools for adults, in the city of Paris, contain 145 males, and 103 females. The receipts of the society for the year 1827, amounted to 23,056 fr., 75 c.: the expenditures to 20,993 fr., 80 c. A report from the 'committee on publications' mentions the popular almanac, and several other useful works, to which the annual premiums of the society were awarded.

Twenty Third Report of the British and Foreign School Society, to the General Meeting, May 12th, 1828. London. Longman & Co.

Those of our readers who are unacquainted with the nature and objects of this institution, we must, for the present, refer to the intelligence contained in the closing number of our last volume. The Report, of which the title is given above, offers a concise and very interesting view of the operations and influence of this philanthropic institution, throughout the British empire, and in the dominions of other nations. The number of schools is everywhere rapidly increasing; and their usefulness is daily becoming more sensibly felt, in the general advancement of character, as well as the wider diffusion of education and intelligence. The income of the society for the year 1827, was 2508*l.* 17 2—expenditure, 2238*l.* 16 4.

Defence of The British and Foreign School Society. By ⊖. London. 1828.

Reasons for a Churchman's Adopting the Principles of the British and Foreign School Society. By ⊖. London. 1828.

These pamphlets contain sound and forcible argument, expressed with 'the meekness of wisdom.' Their contents, however, could excite but little interest in the minds of American readers. That singu-

lar offspring of bigotry, a *religious* hostility to education, is happily unknown in this country.

An Annual Discourse, delivered before the Historical Society of Pennsylvania, November 19, 1828. By Thomas Mc Kean Pettit, Esq. Philadelphia. Carey, Lea, & Carey. 12mo. pp. 38.

The author of this discourse has selected, for his subject, an historical sketch of public efforts for the advancement of education in the state of Pennsylvania. He commences with an account of the 'University of Pennsylvania,' situated, as most of our readers know, in the city of Philadelphia, and which originated in a school founded by the enterprize of Franklin, about 1750. A few interesting facts are also stated in reference to the 'Western University,' authorized by a legislative act of the year 1819, and now rising under very promising auspices in the town of Pittsburg. A sketch of the colleges follows, embracing the history of Dickinson college, at Carlisle, established in 1783; Jefferson college, Canonsburg, 1802; Washington college, Washington, 1806; Allegheny college, Meadville, 1817; Lafayette college, Easton, 1826; Madison college, Uniontown, 1827.

The academies existing in the state, amount, it would appear, to upwards of fifty,—most of which, as well as some of the colleges, are, by their charters, bound to educate, without charge, a given number of youth whose parents are in indigent circumstances.

The legislative enactment of March, 1824, for 'a general system of education throughout the commonwealth,' received 'so little support and encouragement' from the people of the state, that it was repealed in 1826. A system of general education is still wanting in that populous state. Such we trust will not long be the condition of the intellectual interests of a community otherwise so prosperous. In Philadelphia, great progress has been made, towards the general diffusion of education. The city and county of the same name, are, by an act of the legislature, March 1818, designated as 'the first school district of the state,' divided into sections, each provided with a board of directors, and the whole superintended by a board of controllers. The Lancasterian, or monitorial system of instruction, is adopted in the schools. Upwards of 29,000 pupils have thus been provided with the advantages of elementaty education, at an annual expense not exceeding four dollars for each scholar.

This pamphlet, so rich in valuable information, will, we hope, prove useful to the interests of education in Pennsylvania, by securing attention to the subject of a general system of public schools,—for which many excellent advantages are now offered in the successful experience of other states.

The Report of a Committee appointed at a public Meeting of the friends of Education, held at the State House in Trenton, on the night of the 11th November, 1828; exhibiting a succinct account of the state of Common Schools in New-Jersey, derived from the Reports of the Central Sub-Commit-

tees of several Counties and Townships in the State. Trenton. D. Fenton. 1828. 8vo. pp. 46.

This pamphlet contains many important statements, drawn from the communications of the committees mentioned above. Some of the facts disclosed by the inquiries of the committee whose report forms the substance of the pamphlet, are of a very unfavourable character as regards the condition of education in New-Jersey. Upwards of *eleven thousand* children, in that state, are, it appears, unprovided with instruction.

To the main contents of the pamphlet are added a number of letters received from official personages in various parts of the Union, giving an account of the school system adopted in each, and forming, as a whole, one of the most satisfactory publications on the subject of general instruction, that has yet been offered to public attention. The materials thus accumulated by the industry of the New-Jersey committee, will form, we hope, the means of direction and guidance to active measures for popular education in other states.

An Address delivered before the Members of the New Bedford Lyceum, at their first meeting, December 18th, 1828. By Thomas A. Greene. New Bedford. 1829. 8vo. pp. 10.

This address is, we trust, the precursor of many useful discourses from the New Bedford Lyceum. The present publication, indeed, itself will prove serviceable as a guide to the establishment of Lyceums in places where they do not as yet exist, or are not fully organized.

Mr. Greene commences his address with a brief and general view of the object of the Lyceum, which he states to be 'mutual improvement.' The means by which this result is to be attained, are the formation of a 'library,' the procuring of 'philosophical apparatus,' and the collection of a cabinet of specimens in natural history, in its various departments.

The exercises of this Lyceum, however, are not to be restricted to subjects of physical science. Topics of a general nature, and drawn from moral, political, and literary sources, are to be introduced.

The effects probably resulting from the establishment of the Lyceums, are described in a very interesting manner. But our present limits will not afford room for quotation. We would recommend this pamphlet to the attention of Lyceums in general, as one which may suggest valuable hints, in relation to the various objects of associations for mutual improvement.

The Fourth Report of the American Sunday School Union, read at their Annual Meeting, held in the city of Philadelphia, on Tuesday afternoon, May 20th, 1828. Philadelphia. 1828.

From this document it appears that there are established under the auspices of the Sunday School Union, 3760 schools, containing 32,809 teachers, and 259,656 scholars. 'The total number of children receiving Sabbath school instruction in the United States, may be estimated

at 345,000, or about one seventh of that portion of our population which is between the ages of five and fifteen years.'

Third Annual Report of the Massachusetts Sabbath School Union, presented at the Third Annual Meeting, May 29th, 1828. pp. 64.

This Report states, among other articles of intelligence, the number of schools connected with the above society as amounting to 330,—teachers 5,253,—scholars 39,241.

The Christian Teacher's Manual, designed for Families and Sunday Schools. Vol. II. No. 4. (for February, 1829.) Boston. Bowles & Dearborn.

From an interesting account of the last annual meeting of the 'Boston Sunday School Society,' we copy the following paragraphs, which form part of a report of the observations made by one of the speakers at that meeting.

'Behold that hovel,' said he, 'through whose chinks the winter wind whistles. In its comfortless and single apartment, behold that wretched woman! See her wan cheek! It is a mother,—and on that miserable bed, her dying child! Its moan agonizes her heart. Hark! it asks for a drop of cold water to cool the raging fever; *but first, mother, kiss me.* The scene is over; the mother is childless; the spirit has gone to the throne of its Father; but it has gone *educated!* That mother, in her wretchedness and in her poverty, had yet opened a fountain of love in the heart of her child. It flowed in the desire for that caress; the fountain will flow for ever; it is the water of life; it is the element of worship; it is heaven. This is education.

'Father! You take your boy with you to your place of business; you are engrossed, and he is forgotten; but by the instinct of nature, the light hearted boy watches you. He is curious to see your actions; he speculates upon your conduct. *He sees you sacrifice interest to duty, the outward good to the inward sentiment.* He returns with you to the evening repast. When he went with you, he felt the affection which an animal always feels for his benefactor. He returns with a moral sentiment; *he reverences you.* This is education!'

Fourth Annual Report of the Trustees of the High School Society of New-York, made on Saturday, November 29, 1828. New-York. 1828.

The continued prosperity of the New-York High School is indicated by the following intelligence gathered from the above Report. 'In the male introductory department there are, at present, 170 boys;' 'in the junior, 142;' and in 'the senior, 113.' In the High School for Girls there are 305 pupils. Of these, 129 are in 'the lower or introductory rooms;'—90, 'in the middle rooms or junior department;'—86, 'in the higher department.'

The information contained in the following paragraph is of great importance, as regards the general advancement of education.

'We have also to report that the Trustees have from time to time made such regulations, in regard to some of the younger teachers and monitors, as might afford them the best opportunities of education, trusting that thus might be prepared a succession of Teachers familiar with the best application of the monitorial system, whose individual character and attainments would be known to the Trustees and other officers, and who would hereafter, as vacancies may occur, be fitted to occupy the stations of our present Teachers. They have made these arrangements with the more cheerfulness, from the conviction that if in any case, those so educated should not be called into the service of this school, our ultimate object will not be the less promoted by having prepared accomplished female teachers for other schools, public or private, at small expense to us and to great public advantage.'

A large portion of the pamphlet from which the preceding extract is made, is occupied with a just and eloquent tribute to the memory of the late associate principal of the High School, Daniel H. Barnes. From this interesting sketch an extract, obtained through one of the newspapers, was given, by anticipation, in our last number.

Annual Report of the Trustees of the Albany Lancaster School Society. February 2d, 1829. Albany. 1829.

The Albany 'Lancaster School' was first established by the corporation of the city of Albany, in October 1811, with an annual appropriation of $400. The Directors of the school were incorporated by a legislative enactment of May 1812; and by a provision of the common school act of the same year, the share of school money appropriated, from time to time, to the city of Albany, is paid to the trustees of the Lancaster school, with a view to 'the education of such poor children belonging to the city, as shall be, in the opinion of the trustees, entitled to gratuitous education.'

In addition to the general Lancaster school, a part of the above fund was appropriated in 1820, for the support of a school 'for the education of poor children of colour.'

At the solicitation of the trustees of the Lancaster school, the trustees of the Albany Academy admit to gratuitous instruction in the higher branches of education, a certain number of pupils from the 'school,' who are thus promoted, as a reward of superior merit.

Prospectus and Regulations of the A. L. S. & M. Academy. September 1st, 1828. Middletown, Con.

From the preliminary statement of the Trustees we learn that this academy has been re-organized, with the concurrence and approbation of Capt. Partridge, so as 'to avoid the evils incident to an exclusive exercise, by one individual, of all the powers and duties of government and instruction,' and to secure the permanency of the institution, by 'guarding against the contingencies of his removal, disability, or death.'

Capt. Partridge, as president, exercises in conjunction with the trustees, a general supervision of the affairs of the institution; while the

immediate government is vested in the president, superintendent, and professors.

Reports on the Course of Instruction in Yale College. By a Committee of the Corporation and the Academical Faculty New-Haven. Hezekiah Howe. 1828. 8vo. pp. 56.

Our notice of this able and interesting pamphlet we are unexpectedly obliged to defer till next number. In the meantime, we would recommend it to the particular attention of those of our readers who take an interest in the subject of college education.

The Western Monthly Review for January, 1829. Cincinnati. E. W. Flint.

We mention this respectable periodical, for the purpose of attracting the attention of those of our readers who have opportunity to peruse it, (at reading rooms or otherwise,) to a long and eloquent article in this and the two preceeing Nos., on the subject of a national university. Of this article we intended to give a brief synoptical sketch in the present number of the Journal. Want of room, however, compels us to omit it.

The Transylvanian, or Lexington Literary Journal. No. 1. January 1829. Transylvania Press.

This publication, (edited by professor Mathews of the Transylvania university,) is intended to secure the aid of local interest and character, to the diffusion of useful knowledge; to give publicity to valuable discoveries; and 'to mark improvements in the science and art of teaching.'

The contents of the number are apparently well suited to these objects; and the general character of the style and execution is highly respectable. The merit of the poetical articles, however, we would leave to be discussed in publications which are more strictly connected than ours, with matters of taste and the arts.

A Lecture on Rail Roads. Delivered January 12th, 1829, before the Massachusetts Charitable Mechanic Association. By William Jackson, a Member of the Association. Boston: Crocker & Brewster. 1829. 8vo. pp. 32.

This instructive discourse we would mention, as one which we hope will be perused at every Lyceum in this and the neighbouring states. It contains much practical information on a subject of immediate interest to the community. It serves also to furnish very satisfactory proof that persons engaged in the business of active and industrious life, may occasionally confer important benefits on society, by joining associations for mutual instruction, and communicating, through such channels, the results of their reading and investigation.

Errors in Common Education. An Address delivered in Brooklyn, (Conn.,) October 22d, 1828.

This practical and interesting address was published in successive Nos. of the Brooklyn Journal. Like the pamphlet mentioned in the preceding notice, it is one of the valuable fruits of the Lyceum. We know not how a more effectual service could be rendered to common schools, than by the circulation of a large edition of this discourse, which is so happily adapted to the great end of promoting improvement in education. We cannot omit this opportunity of expressing our hope that the Brooklyn Lyceum will take measures, at the earliest opportunity, for accomplishing this object.

Catalogue of the Mount Pleasant Classical Institution. Amherst, Massachusetts. January 1829.

The general plan of this seminary was presented to our readers in former Nos. From the pamphlet before us we extract the following intelligence.

'This Institution, established on the general plan of the Academic and Commercial Gymnasia of Germany, was opened on the 1st. of June, 1827. In order the more fully to secure the advantages of parental guardianship and supervision to all its members as a *family*, the number of pupils was limited in January 1828, to one hundred. During the greater portion of time which has since elapsed, this number has been actually engaged in study at the Institution, and a considerable number of names always entered in advance. These circumstances have induced its founders to extend the means of instruction much beyond the original plan. Since the last annual catalogue was issued, the number of Professors and Instructers has been increased from nine to fourteen.'

An Address delivered at Hanover, October 29th, 1828, at the Inauguration of the Author as President of Dartmouth College. By Nathan Lord, D. D. Published by request. Windsor, Vt. 1828.

The importance of the subject of this address, and the judicious views and candid manner of the author, demand a much more particular notice than our present space can afford. Experience, however, convinces us, that it is impossible to keep even pace with the progress of cotemporary publications of this nature. Instead, therefore, of attempting an inadequate analysis of this pamphlet, we would present to our readers the following passage on a subject of vast importance to all stages of instruction, and to every individual engaged in any department of the great business of training the mind and forming its habits.

'The changes which have taken place, and are still occurring in the methods of instruction, at the preparatory schools, may be hoped so far to hasten the development and strengthening of the intellectual powers, as that the student may come, at an earlier period of his college course, to that class of studies which call more immediately for the use of

reason, and give it direction in its inquiries after truth. The impulse which the mind receives from an acquaintance with its own powers, and their application to some branches of intellectual philosophy, is a matter of general experience. Every one recollects the pleasure of his first acquisitions in this department of study, and the ardour with which he thenceforth aspired to higher attainments. He breathed a freer air, he went forward with a new confidence, and his application to all the duties before him became more easy and more successful. If, then, we might, almost on the threshold of a public education, habituate the mind to itself, and aid it in some of the more simple essays of its own powers, it would seem, that we should prepare it for the readier perception of classic beauties, and for mastering more effectually the elements of mathematical, political, and moral science.'

[The more important of the following publications will be selected for further notice in subsequent numbers.]

The American Sunday School Magazine for January, 1829. Philadelphia. American Sunday School Union. 8vo.

The Youth's Friend and Scholar's Magazine for March, 1829. American Sunday School Uuion. 18mo.

Annual Report of the Superintendent of Common Schools. Made to the Legislature of the State of New-York. February 6th. 1829. Albany, 1829.

[See intelligence concerning education in New-York, p. 78 of this No. of the Journal.]

Catalogue of the Teachers and Scholars of the Young Ladies' High School. Boston. January 1829.

Mr. Bailey has appended to this pamphlet several useful suggestions regarding education. These we shall take the earliest opportunity of laying before our readers. As an evidence of the increasing interest taken in superior efforts for the education of females, we may mention that this catalogue presents a total of 168 pupils.

The Sabbath School Visitant and Juvenile Magazine for January, 1829. Utica. G. S. Wilson.

Abstract of the Returns of the Selectmen of Towns, and Assessors of Plantations, of the number of School Districts, number of Scholars, and the amount of Money raised and expended for the support of Schools in Maine. Published by order of the Legislature. 1829. Portland.

First Lessons in Latin, upon a new plan; combining abstract Rules with a progressive series of practical Exercises. By Charles Dexter Cleveland. Boston. Benjamin Perkins & Co. 1829. 12mo. pp. 197.

An expeditious method of learning the Latin Language; exemplified in a Literal Interlineary Translation of the First Part of Jacob's Latin Reader. Salem. Foot & Brown. 1828. 12mo. pp. 197.

An Abridgment of Adam's Latin Grammar, with some corrections and additions. Boston. Wells & Lilly. 1824.

For the lateness of our notice of this valuable school book, we can offer no apology but that of our not having been aware, till within a few weeks, that such a work was in existence. The expediency of using abridgments, is questioned by teachers of ability and experience. But this is a point, which we have not room here to discuss. It was adverted to, our readers may recollect, in some observations on Mr. Gould's edition of Adam's Grammar; and to these we must for the present refer.

This compend will, we think, be found very useful in the instruction of young learners generally, and of female pupils in particular. It will be of important service, also, to young teachers, as a guide to the best course of selections from the larger editions of the grammar. For this use it may be safely recommended; as it comes from the hands of one, on whose judgment much confidence is justly placed.

Essays on the Philosophy of Instruction, or the Nurture of Young Minds. Phelps & Clark. Greenfield, Massachusetts. 1829. 18mo. pp. 85.

An article on these essays is in preparation. In the mean time, we would earnestly recommend the pamphlet itself to the attention of parents and teachers, and especially to such of the latter as are engaged in the instruction of young children.

English Grammar in Familiar Lectures, accompanied by a Compendium embracing a new systematic order of Parsing; a new system of Punctuation; exercises in false Syntax; a system of Philosophical Grammar, in Notes; and a Key to the Exercises. Designed for the use of Schools and private learners. By Samuel Kirkham. Tenth edition, enlarged and improved. Rochester, N. Y. Marshall & Dean. 1829. 12mo. pp. 216.

This book presents the substance of Murray's Grammar in an explanatory form; and offers at the same time, the views of later grammarians, in a series of collateral notes.

A Catechetical and Practical Grammar for the use of Schools. By A. F. Wilcox of the Bridgeport High School. New-Haven, S. Wadsworth; and R. Lockwood, New-York. 1828. 18mo. pp. 110.

This little volume also contains Murry's system of Grammar, but reduced to a catechetical form, and revised in the department of syntax.

Inductive Grammar. Designed for Beginners. By an Instructer. Windsor. S. Ide. 1829. 18mo. pp. 54.

This manual would be better styled a help to inductive teaching'

than an 'inductive grammar.' It gives the *results* rather than the *process* of induction. It offers the *conclusions* to which the mind is brought by the study of grammar, rather than the *reasoning* by which these conclusions are attained. Still, it is ingenious and original in its plan, and, in the hands of a competent teacher, may be made very useful.

An Abridgment of English Grammar. By J. Emery, A. B. Wellsborough, Pa. B. B. Smith. 1829. 24mo. pp. 39.

This is an outline of grammar, intended to be filled up by explanation, and furnished with examples by 'the living teacher.' An intelligent instructer may, with the aid of the 'black board,' render this epitome equal to the common purposes of instruction in primary schools.

The Juvenile English Grammar. By the Author of 'The Little Traveller.' Boston. 1829. Benjamin Perkins & Co. 18mo. pp. 89.

This is a selection of the most important parts of grammar, explained in familiar dialogues.

The Youth's Assistant in theoretic and practical Arithmetic. Designed for the use of Schools. By Zadock Thompson, A. M., Author of the Gazetteer of the State of Vermont. Improved Edition. Woodstock, Vt. 1828. David Watson. 12mo. pp. 216.

This book is divided into three parts: the first, composed on the plan of Colburn: the second, on that of Lacroix: the third is practical and miscellaneous.

A practical System of Modern Geography, or a View of the present state of the World. Simplified and adapted to the capacity of Youth. Accompanied by a new and improved Atlas. By J. Olney. Hartford. D. L. Robinson & Co. 1828. 18mo. pp. 207.

This compend differs from the many that have appeared since that of Woodbridge, chiefly in more simplicity of arrangement, and a method of instruction more dependent on the use of the maps.

Introduction to the National Reader, a selection of Easy Lessons, designed to fill the same place in the Common Schools of the United States, that is held by Murray's Introduction, and the compilations of Guy, Mylius, and Pinnock, in those of Great Britain. By John Pierpont; compiler of the American First Class Book, and the National Reader. Boston. Richardson & Lord. 1828. 12mo. pp. 168.

Of this school book we had occasion to speak, while it was in the

press. For the present, we must refer to the notice then taken of it; as from want of room, we can only say that this compilation seems well adapted to the object mentioned in its title page.

The Spelling Reader, or Concordant Spelling Book. By Jeremiah and Anna T. Goodrich. Albany. 1828. 12mo. pp. 156.

The chief peculiarity of this book consists in its being so arranged as, in one part, to present on every page a reading lesson, from which the words of the spelling lesson are extracted. This is certainly a good point in the plan of the exercises, but much of its value must depend on the style of the pieces from which the lessons are taken. Unfortunately the selection has been made from the Scriptures; the style of which, as is well known to teachers, though very simple in structure, contains many words of very difficult pronunciation.

The General Class Book, or interesting Lessons in Prose and Verse, on a great variety of subjects, combined with an Epitome of English Orthography and Pronunciation; and intended as the Third Book in a course of Reading for the use of Schools. By the Author of the Franklin Primer, and the Improved Reader. Greenfield, Mass. Phelps & Clark. 1828. 18mo. pp. 312.

Of the other volumes in the series mentioned on the title page of this, we have already spoken, as valuable improvements in the compilation of school books. The present work seems, with the exception of a few points regarding pronunciation and inflection, excellently adapted to its objects. We would recommend it, along with the others, to the particular attention of teachers and school committees.

Johnson's Dictionary, improved by Todd. Abridged for the use of Schools; with the addition of Walker's Pronunciation; an abstract of his principles of English Pronunciation, with Questions; a Vocabulary of Greek, Latin, and Scripture Proper Names; and an Appendix of Americanisms. Boston. Benjamin Perkins & Co. 1828.

The chief merit of this dictionary consists in its combining the definitions given by Johnson with the orthoepy of Walker. As a standard book for common schools, it may serve to aid the attainment of an intelligent uniformity in instruction, as far as regards that very important but much neglected branch of it, the English language. To make the work adequate in all respects, however, to this useful purpose, it would perhaps require a brief and practical introduction, explaining some of the apparent singularities of Walker's system of pronunciation, and pointing out the words in which Johnson's orthography is become obsolete; as, for example, in 'error*u*r,' 'critic*k*,' and similar words.

Books for Children.

The Infant School and Nursery Hymn Book ; being a Collection of Hymns original and selected, with an analysis of each, designed to assist Mothers and Teachers in developing the Infant Mind. To which are added Moral Songs and Pieces for Recitation. The whole adapted to the capacity of Children under seven years. New-York. W. Carey & R. Lockwood. 1828 18mo. pp. 126.

Questions and explanations are justly considered by the author of this little volume as among the chief means of rendering early instruction intelligible and interesting. We doubt, however, whether any method of tuition, could render some passages in several of the hymns in this collection intelligible to young children. An unnecessary and degrading vulgarity of thought and style characterizes not a few of these pieces. In a word, we should dread the mental influence of this volume, throughout. To the opening mind of infancy it seems to offer low, formal, and mechanical views of most of the subjects which are introduced in it.

We select one specimen of the faults of which we complain :—

'God made the water for my drink,
God made the fish to swim ;
God made the trees to bear nice fruit,
Which does my taste so nicely suit ;
Oh ! how should I love him.'

Walks with Mamma, or Stories in Words of One Syllable. New-York. Samuel Wood & Sons. 18mo. pp. 48.

With the exception of one or two passages in the third and fourth stories, this book furnishes much instruction in a very natural and interesting form. The thoughts are simple and at the same time elevated ; and the language is familiar without being silly or low. A few grammatical inaccuracies, however, seem to have escaped the notice of the author.

The Infant's First Book for Lessons in Reading. Boston. Benjamin Perkins & Co. 1829. 18mo. pp. 22.

This little work is a pretty successful exemplification of rational and affectionate conversation with infant children. We must question, however, the character of some of the motives to goodness, which are held up to the young reader in the seventh and eighth pages of the book, and some of those mentioned in the twenty first page.

The reasons for moral action should, even in the stage of infancy, be drawn as directly as possible from the mind itself, by apposite questions, instead of being inculcated by tuition.